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ABSTRACT

Volume III presents the results of High/Scope Foundation's Analysis of Classroom Interaction, a classroom observation instrument field tested at four projects. The purpose of this study was to assess the consistency of implementation of the Cognitively Oriented Curriculum in the four widely separated communities in which the High/Scope Foundation sponsors a model Follow Through program. Following up on pilot study work completed during 1971-72, the analysis of classroom interactions completed during 1972-1973 provides several important conclusions about the operation of the Cognitively Oriented Follow Through model at the critical point of individual teachers and children interacting in the classroom. In particular, reliability, day-to-day classroom variation and a comparison of two observation procedures were reviewed. Data analysis is available in the appendices which comprise more than two-thirds of the document. (Author/CS)

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VOLUME III

PROGRESS REPORT
COGNITIVELY ORIENTED CURRICULUM
PROJECT FOLLOW THROUGH

September, 1973

CLASSROOM INTERACTIONS IN FOUR FOLLOW THROUGH SITES

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PREFACE

This year-end progress report analyzes Follow Through activities between July 1, 1972 and July 1, 1973 at the High/Scope Educational Research Foundation and the ten centers sponsored by the Foundation as part of the National Follow Through experiment. The centers are:

Okaloosa County, Florida
Howland-Lathrop, Chicago, Illinois
Leflore County, Mississippi
Central Ozarks, Missouri
P.S. 92, Harlem, New York
Denver, Colorado
Greeley, Colorado
Trinidad, Colorado
Riverton, Wyoming
Seattle, Washington

The report is divided into three volumes. Volume I discusses curriculum development, field service issues, and training. Volume II summarizes the 1972-73 evaluation activities. These include a report on the analysis of sponsor-collected outcome data from the ten Follow Through projects, a report on the findings and formative use of the Classroom Implementation Matrix, case study reports presenting supplementary data from individual Follow Through centers, and a report on the development and field testing of a new procedure for assessing the writing of elementary school children. Volume III presents the results of High/Scope Foundation's Analysis of Classroom Interaction, a classroom observation instrument field tested at four projects.

The first section of Volume I is a printed volume giving an overview of the High/Scope curriculum and operation. Included are discussions of theory as well as implications for curriculum practice. The second section presents general problems in the field application of the High/Scope model and a look at the High/Scope Training and Development Center (TDC), stressing the unusual importance this center has had on our evolving curriculum and on implementation at our field centers.

Volume II is divided into four sections representing separate phases of the evaluation. In the first section the standard outcome data collected by the sponsor are reported. The Stanford-Binet and achievement testing conducted since the project began in 1968 represent the most consistent aspect of the sponsor's evaluation. There have been several different approaches to evaluation and different instruments used at various times, but the Stanford-Binet and the Comprehensive Tests of Basic Skills provide the only data on a continuous longitudinal basis.

The second section of Volume II presents outcome data collected by school personnel at the Follow Through sites. This includes such things as attendance figures, parent involvement, the delivery of ancillary services, and the achievement of Follow Through and non-Follow Through students on tests administered by the school districts. These supplementary data are an important adjunct to the data that can be collected within the resources of the sponsor. It was originally hoped that a report on the supplementary data from each site would be included in this volume, but because of several factors (especially a delay in funding for the data collection and the quantity and complexity of the data received), the analyses could be completed for only five Follow Through programs. The remaining site reports will be completed later this fall and distributed to the programs.

In the third section of Volume II, the development of a new assessment procedure is described. During 1972-73 High/Scope research and curriculum staff developed criteria for evaluating the writing of Follow Through children and created procedures for eliciting, scoring, and analyzing samples of writing. Although the summative aspects of this procedure are stressed in this report, the writing assessment has obvious applications as a formative tool that could produce valuable information for teachers on the development of their students in language arts.

Volume II concludes with a report on the use of the Implementation Matrix for assessing the implementation status of classrooms. The Implementation Matrix was also developed by the High/Scope staff to provide a relatively straightforward procedure by which curriculum assistants could rate each of their classrooms on variables considered important for the operation of a Cognitively Oriented classroom.

Volume III rounds out this report of sponsor evaluation activities by presenting the results of the classroom observation study. Following up on pilot work completed during 1971-72, the analysis of classroom interactions completed this year provides several important conclusions about the operation of the Cognitively Oriented Follow Through model at the critical point of individual teachers and children interacting in the classroom.

In any study of the magnitude of this National Follow Through project, literally thousands of people are involved in making an effective and responsive matrix to contain the research and development. Parents, teachers, aides, principals, school superintendents, regional officials, federal government staff, and of course, the children themselves are deeply involved in the dynamic process that creates education. Deep appreciation for their confidence and assistance is felt by all of the Foundation staff. We could not do our work without their help, and anything we do accomplish is because of their commitment to the development of quality education for their children.

This progress report represents both a written product of specific individuals as well as the direct support of a large staff. At some points in the report, specific individuals are mentioned as responsible for specific pieces of work. In every case, given the dynamics of cooperative work within the Foundation, many staff members had significant input for shaping the area of a work. This spirit of cooperation and interrelationship is essential to the quality of the overall work undertaken by the Foundation.

Work for the coming year includes production of detailed descriptions of areas of the curriculum and refinement of the research instruments. These will be reported as they become available.

David P. Weikart
Project Director
High/Scope Cognitively
Oriented Curriculum

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We would like to extend our appreciation to the observers, Karen Rugg, Alice Williams and Adeline Arist-Neeguaye, whose interest in the study and alertness in the classroom facilitated the data collection and to the teachers and children whose acceptance of the observations made this study possible. Eric Chapman, Jerry Goebel, Edwin Graham, Sam Hannibal, Charles Hohmann, Carolyn Jackson, Donna McClelland, Victor Milner, John Nowosad and Dave Weikart were instrumental in the development and revision of the observation coding system and were readily available for discussing any problems that arose.

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INTRODUCTION

Overview

Interaction analysis systems "attempt to systematically investigate what teachers and/or pupils actually do while they are in the classroom" (Kalter, 1971, p. 2). Thus, through systematic observation, interaction analysis systems provide information about ongoing classroom processes. Much of educational research has concerned itself with outcome measures, such as scores from intelligence and achievement tests, in evaluating educational programs or curricula. Although these kinds of measures might provide information about what a child has learned, they fail to provide information about the day-to-day interactions and behaviors that are vital to that learning.

Interaction analysis systems provide descriptive pictures of a network of classroom interactions that can be used for assessing a wide variety of process variables (extensive bibliographies can be found in recent articles by Coller, 1972, Gordon, 1973 and Rosenshine, 1973). The variables assessed in this study were selected to relate to the following processes important in the Cognitively Oriented Curriculum Follow Through model:

. Amount of time the observed child spends interacting with adults in the classroom;

. Type of adult behavior used in interactions with children;

. Type of attention the adults give to the observed child;

. Number of times the child initiates interactions with adults;

. Amount of time children spend interacting with peers;

- Nature of child-child interactions (e.g., using materials, fighting, passively watching other children, not using materials);
- Kinds and amounts of materials being used (e.g., pictures, written, concrete);
- Amount of time spent in various activities (e.g., planning activities, child-selected activities, teacher-structured activities);
- Number of children in the observed child's area or group;
- Location of the observed child within the room (e.g., block area, math and science area, woodworking area).

Purpose

The purpose of this study was to assess the consistency of implementation of the Cognitively Oriented Curriculum in four widely separated communities* in which the High/Scope Foundation sponsors a model Follow Through program. The study was designed to answer the following questions:

- Do differences in implementation occur when the curriculum is implemented in a wide variety of contexts? And, if so, what is the nature and extent of these differences?
- How do classroom ratings by curriculum assistants and field consultants relate to classroom observation assessment?
- How well is the Cognitive Curriculum being implemented in these classrooms?
- What is the relation of classroom interactions to outcome measures?
- Is interaction analysis a viable method for obtaining curriculum implementation information?

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* Trinidad, Colorado; Greeley, Colorado; Okaloosa County, Florida; and P.S. 92, New York City.

In addition, this study permitted an examination of several methodological issues related to observational research. In particular, reliability, day-to-day classroom variation and a comparison of two observation procedures were reviewed.

Overview of the Cognitively Oriented Curriculum

The Cognitive Curriculum is an "open framework" approach that places both the teacher and the child in active, initiating roles. It attempts to blend the virtues of purposeful teaching with open-ended, child-initiated activities (The High/Scope Early Elementary Program, 1973).

The High/Scope Cognitive Curriculum model is concerned with educational change through the implementation of a curriculum framework based on the developmental theory of Jean Piaget. This framework focuses on the underlying cognitive processes that are the basis for formal learning in the child.

The overriding objective for the Cognitive Curriculum program is to provide a classroom environment that is optimally conducive to cognitive development. For this to occur, the teacher and child must be actively involved. Certain teaching strategies facilitate the teacher's involvement in the learning process. They include a) a consistent but flexible daily routine, b) a room arrangement that makes sense to the children, c) provisions for active learning experiences, d) the use of language as a tool for thinking, e) sequenced activities from concrete to abstract, f) the collection and organization of materials to provide experiences in the relationship areas (temporal, spatial, classification, seriation and number), and g) the organization of learning around themes or units.

Thus, learning in this setting comes through direct experience and action by the child and by the following processes (as outlined in the High/Scope Early Elementary Program, 1973):

- Child-initiated contacts between children and adults should be frequent and more casual than formal.
- Children should make choices for themselves and these choices should be respected by the adults in the classroom.
- Part of the classroom routine should involve deliberate planning and reporting of activities by children.

- Activities in which children interact primarily with materials should be constructive, and enough time should be allotted to complete these activities.
- Children should demonstrate ability to represent ideas at increasingly abstract levels.
- Children should organize and carry out cooperative activities.
- In the process of learning, children should communicate their ideas and information in a variety of tangible forms which can demonstrate pupil progress (e.g., stories, charts, graphs, verbal expression).

Teachers in this model are guided by a curriculum framework that orients them to the way children think and behave at different stages of development. This "open framework" gives the teacher a basis for planning and a reason for doing. It is a source of ideas for activities that strengthen children's thinking, communication and academic skills which are the concern of the High/Scope Cognitive Curriculum.

METHODOLOGY

Experimental Design

A pre-post design was used in this study with classrooms and sites serving as units of analysis. The population was considered to be all potential behaviors that might occur in a classroom as conceptualized by the category coding system. Data collected in the fall and in the spring were subject to five kinds of analysis. Within-site comparisons and across-site comparisons within grade levels were made for each set of data and across-time comparisons were done for each classroom. The spring data from all four centers were also compared with data collected on the first and third grade students at the High/Scope Educational Research Foundation's Training and Development Center (TDC) in Ypsilanti, Michigan. In addition to these major analyses, some of the observation data collected in the spring were used in the comparison of two observation procedures and in the comparison of outcome measures with process variables. Comparisons were also made between the spring data collected in Greeley and data collected on non-Follow Through first and third grade classes in Greeley.

The within-site comparisons provide information about teacher variability within a particular curriculum, at a particular site and grade level (see Rosenshine, 1970, for information on teacher variability within a curriculum). The across-site comparisons provide information about possible variations in curriculum implementation in different communities; across-time comparisons investigate the degree of change in pupil and teacher behaviors over the course of a school year. An indication of how similar the field classes look to the "idealized" classroom at the High/Scope TDC, which is under close High/Scope Foundation supervision, is provided in the TDC comparisons. Comparisons between the Follow Through and non-Follow Through classes indicate whether the observation instrument can detect those behavioral differences in classrooms using the Cognitive Curriculum and classrooms not using the curriculum.

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Instrument Construction

The Analyses of Classroom Interaction (ACI) is a time-sampling category system developed by High/Scope Foundation staff. The observation technique involved an observer focusing on one child at a time for approximately two minutes. A tape recorder carried by the observer emitted a "beep" every 22nd and 25th second. At the first tone the observer watched the "target" child and at the second tone she stopped observing and recorded the activity she had observed for the three-second period. A three-second observation period is called an event. A cycle consists of five of these events.

The ACI had as its starting point the PROSE (Personal Record of School Experience) developed by Medley and his colleagues at the Educational Testing Service (Medley, Quirk, Schluck, and Ames, 1971) and used by the High/Scope Foundation in two previous studies (Deloria, Dick, Hanvey, and Love, 1972; Sheriff, 1971). Based on the experience of these two studies the usefulness of each behavior recorded by the PROSE was discussed by curriculum specialists and decisions were made regarding the adequacy of the categories for assessing curriculum implementation. Necessary revisions were made to enhance the instrument's ability to reflect behaviors thought to be important in a well-implemented Cognitively Oriented Curriculum. After the October-November data collection period, additional changes were made in the instrument prior to its use in the February-March data collection. The observed teacher and child behaviors (items) are organized into categories. The category serves to identify the behavioral interaction type and the items indicate the specific dimensions of the interaction to be coded by the observer. Each category and item of the ACI is described below. The coding form is illustrated on the following page.

Category 1

The identity of the adult with whom the observed child is interacting is reflected in this category. The items include teacher, adult aide, other adult aide, teenage aide, observer, and other. This is the same as the original PROSE category except for the addition of a second adult aide item (OAA). In most Follow Through classrooms three adults are present: one teacher and two aides. These items permit an assessment of the extent to which team planning and the sharing of teacher responsibility occur.

	CYCLE A					CYCLE B					CYCLE C				
1. TCHR	[1]	[1]	[1]	[1]	[1]	[1]	[1]	[1]	[1]	[1]	[1]	[1]	[1]	[1]	[1]
AA	[2]	[2]	[2]	[2]	[2]	[2]	[2]	[2]	[2]	[2]	[2]	[2]	[2]	[2]	[2]
OAA	[3]	[3]	[3]	[3]	[3]	[3]	[3]	[3]	[3]	[3]	[3]	[3]	[3]	[3]	[3]
TAA	[4]	[4]	[4]	[4]	[4]	[4]	[4]	[4]	[4]	[4]	[4]	[4]	[4]	[4]	[4]
OBS	[5]	[5]	[5]	[5]	[5]	[5]	[5]	[5]	[5]	[5]	[5]	[5]	[5]	[5]	[5]
OTH	[6]	[6]	[6]	[6]	[6]	[6]	[6]	[6]	[6]	[6]	[6]	[6]	[6]	[6]	[6]
2. INIT	[1]	[1]	[1]	[1]	[1]	[1]	[1]	[1]	[1]	[1]	[1]	[1]	[1]	[1]	[1]
LSWT	[2]	[2]	[2]	[2]	[2]	[2]	[2]	[2]	[2]	[2]	[2]	[2]	[2]	[2]	[2]
3. NEGCT	[1]	[1]	[1]	[1]	[1]	[1]	[1]	[1]	[1]	[1]	[1]	[1]	[1]	[1]	[1]
POSCT	[2]	[2]	[2]	[2]	[2]	[2]	[2]	[2]	[2]	[2]	[2]	[2]	[2]	[2]	[2]
PROCT	[3]	[3]	[3]	[3]	[3]	[3]	[3]	[3]	[3]	[3]	[3]	[3]	[3]	[3]	[3]
4. LSWT	[1]	[1]	[1]	[1]	[1]	[1]	[1]	[1]	[1]	[1]	[1]	[1]	[1]	[1]	[1]
QDVG	[2]	[2]	[2]	[2]	[2]	[2]	[2]	[2]	[2]	[2]	[2]	[2]	[2]	[2]	[2]
SHTL	[3]	[3]	[3]	[3]	[3]	[3]	[3]	[3]	[3]	[3]	[3]	[3]	[3]	[3]	[3]
DO4	[4]	[4]	[4]	[4]	[4]	[4]	[4]	[4]	[4]	[4]	[4]	[4]	[4]	[4]	[4]
QCVG	[5]	[5]	[5]	[5]	[5]	[5]	[5]	[5]	[5]	[5]	[5]	[5]	[5]	[5]	[5]
NONTC	[6]	[6]	[6]	[6]	[6]	[6]	[6]	[6]	[6]	[6]	[6]	[6]	[6]	[6]	[6]
5. STAR	[1]	[1]	[1]	[1]	[1]	[1]	[1]	[1]	[1]	[1]	[1]	[1]	[1]	[1]	[1]
PART	[2]	[2]	[2]	[2]	[2]	[2]	[2]	[2]	[2]	[2]	[2]	[2]	[2]	[2]	[2]
6. EDFC	[1]	[1]	[1]	[1]	[1]	[1]	[1]	[1]	[1]	[1]	[1]	[1]	[1]	[1]	[1]
NEDFC	[2]	[2]	[2]	[2]	[2]	[2]	[2]	[2]	[2]	[2]	[2]	[2]	[2]	[2]	[2]
NTRL	[3]	[3]	[3]	[3]	[3]	[3]	[3]	[3]	[3]	[3]	[3]	[3]	[3]	[3]	[3]
LSWT	[4]	[4]	[4]	[4]	[4]	[4]	[4]	[4]	[4]	[4]	[4]	[4]	[4]	[4]	[4]
7. CNTC	[1]	[1]	[1]	[1]	[1]	[1]	[1]	[1]	[1]	[1]	[1]	[1]	[1]	[1]	[1]
VRB	[2]	[2]	[2]	[2]	[2]	[2]	[2]	[2]	[2]	[2]	[2]	[2]	[2]	[2]	[2]
8. MPICA	[1]	[1]	[1]	[1]	[1]	[1]	[1]	[1]	[1]	[1]	[1]	[1]	[1]	[1]	[1]
MPICP	[2]	[2]	[2]	[2]	[2]	[2]	[2]	[2]	[2]	[2]	[2]	[2]	[2]	[2]	[2]
MREAD	[3]	[3]	[3]	[3]	[3]	[3]	[3]	[3]	[3]	[3]	[3]	[3]	[3]	[3]	[3]
MWRIT	[4]	[4]	[4]	[4]	[4]	[4]	[4]	[4]	[4]	[4]	[4]	[4]	[4]	[4]	[4]
MOBJ	[5]	[5]	[5]	[5]	[5]	[5]	[5]	[5]	[5]	[5]	[5]	[5]	[5]	[5]	[5]
9. PRET	[1]	[1]	[1]	[1]	[1]	[1]	[1]	[1]	[1]	[1]	[1]	[1]	[1]	[1]	[1]
DRAPY	[2]	[2]	[2]	[2]	[2]	[2]	[2]	[2]	[2]	[2]	[2]	[2]	[2]	[2]	[2]
SDRDY	[3]	[3]	[3]	[3]	[3]	[3]	[3]	[3]	[3]	[3]	[3]	[3]	[3]	[3]	[3]
OTHAC	[4]	[4]	[4]	[4]	[4]	[4]	[4]	[4]	[4]	[4]	[4]	[4]	[4]	[4]	[4]
RNTE	[5]	[5]	[5]	[5]	[5]	[5]	[5]	[5]	[5]	[5]	[5]	[5]	[5]	[5]	[5]
10. ONE	[1]	[1]	[1]	[1]	[1]	[1]	[1]	[1]	[1]	[1]	[1]	[1]	[1]	[1]	[1]
TWO	[2]	[2]	[2]	[2]	[2]	[2]	[2]	[2]	[2]	[2]	[2]	[2]	[2]	[2]	[2]
3–5	[3]	[3]	[3]	[3]	[3]	[3]	[3]	[3]	[3]	[3]	[3]	[3]	[3]	[3]	[3]
6–10	[4]	[4]	[4]	[4]	[4]	[4]	[4]	[4]	[4]	[4]	[4]	[4]	[4]	[4]	[4]
10–ALL	[5]	[5]	[5]	[5]	[5]	[5]	[5]	[5]	[5]	[5]	[5]	[5]	[5]	[5]	[5]
11. LONE	[1]	[1]	[1]	[1]	[1]	[1]	[1]	[1]	[1]	[1]	[1]	[1]	[1]	[1]	[1]
ADULT	[2]	[2]	[2]	[2]	[2]	[2]	[2]	[2]	[2]	[2]	[2]	[2]	[2]	[2]	[2]
12. ARCR	[1]	ARCR	[1]			[1]	ARCR	[1]			[1]	ARCR	[1]		
QUIET	[2]	QUIET	[2]			[2]	QUIET	[2]			[2]	QUIET	[2]		
INSEQ	[3]	INSEQ	[3]			[3]	INSEQ	[3]			[3]	INSEQ	[3]		
OTH	[4]	OTH	[4]			[4]	OTH	[4]			[4]	OTH	[4]		
SCIMA	[5]	SCIMA	[5]			[5]	SCIMA	[5]			[5]	SCIMA	[5]		
CRC	[6]	CRC	[6]			[6]	CRC	[6]			[6]	CRC	[6]		
LANG	[7]	LANG	[7]			[7]	LANG	[7]			[7]	LANG	[7]		
BLKSHP	[8]	BLKSHP	[8]			[8]	BLKSHP	[8]			[8]	BLKSHP	[8]		
SOCSND	[9]	SOCSND	[9]			[9]	SOCSND	[9]			[9]	SOCSND	[9]		
13. WRK	[1]	WRK	[1]			[1]	WRK	[1]			[1]	WRK	[1]		
SNK	[2]	SNK	[2]			[2]	SNK	[2]			[2]	SNK	[2]		
RFML	[3]	RFML	[3]			[3]	RFML	[3]			[3]	RFML	[3]		
GRP	[4]	GRP	[4]			[4]	GRP	[4]			[4]	GRP	[4]		
STRY	[5]	STRY	[5]			[5]	STRY	[5]			[5]	STRY	[5]		
PLN	[6]	PLN	[6]			[6]	PLN	[6]			[6]	PLN	[6]		
EVLT	[7]	EVLT	[7]			[7]	EVLT	[7]			[7]	EVLT	[7]		
CLUP	[8]	CLUP	[8]			[8]	CLUP	[8]			[8]	CLUP	[8]		

REMARKS

TEACHER: ______
OBSERVER: ______
DATE OF OBSERVATION: ______
CENTER: ______
SEX: ______
GRADE: ______
SUBJECT IDENTIFICATION ______

Category 2

Category 2 describes whether or not the observed child initiates an interaction with an adult and whether or not the child is attending to an adult who is not paying attention to him. Children in the Cognitive Curriculum should feel at ease in initiating interactions with adults.

Category 3

The type of controlling behavior the adult uses is recorded by this category. The ACI records three types of control: negative, positive and procedural. The model emphasizes the use of positive control and seeks to minimize the use of negative control. It is expected that a teacher will spend some time of the day giving directions or movement instructions (procedural control).

Category 4

Category 4 describes the adult's noncontrolling behavior. The items in this category are listening and watching, asking divergent questions, showing and/or telling, asking convergent questions and doing something for the child. In the Cognitive Curriculum the teacher's behavior should facilitate the child's ability to think independently and to express himself.

Category 5

This category indicates whether the adult is dealing with the observed child individually or as a member of a group. Both individual attention and group attention are used by adults in cognitive classrooms when appropriate.

Category 6

Child-child interactions are described by this category. A categorizing scheme for coding the content of these conversations was desired but was not included because of anticipated observer difficulty in trying to hear these conversations. Instead, the focus turned to the use of materials. Were the children, during their interactions with each other, using materials the teacher had placed in the room? The use of materials in the discovery and learning process is an important theme in the Cognitive Curriculum.

The items in this category are interactions involving materials, interactions not involving materials, interactions involving aggressive behavior, and interactions involving the passive watching of other children.

Category 7

This category records whether interactions are of a verbal or physical nature.

Category 8

The manner in which the child uses materials is recorded by this category. The active manipulation of blocks or toys is distinguished from the passive use of such materials as workbooks or worksheets. A list of active uses of materials was provided by the curriculum specialists. However, the distinctions made in the list between the active and passive uses of materials were not satisfactory. The purpose of the category was to determine whether or not children were actively involved with materials. In actuality what was being coded was the amount of energy or effort children exerted toward the object they were using. This category was eliminated prior to the second data collection because of these coding inconsistencies.

Category 9

The cognitive theory assumes that children learn about the world primarily through concrete, active experiences with real objects. They then progress to recognition of pictures and models which are separate from the real objects they represent and finally to the sign level where written words, numerals and other conventional and arbitrary representations are used. Category 9 records whether the material being used during the interaction is of a pictorial, written or concrete nature.

Category 10

As mentioned in the preceding statement the cognitive theory assumes that active learning experiences provide the basis for all learning. Children in classrooms using the Cognitive Curriculum are encouraged to move around and explore various aspects of the learning environment that are of interest to them. Category 10 indicates whether or not the observed child is in locomotion. However, exploratory behavior does not always involve locomotion. Stationary activities that are of an exploratory nature might also involve physical activity by the child. This category was deleted prior to the spring data collection because it did not provide enough information about exploratory behavior.

Category 11

The type of activity the target child is engaged in is described in this category. Three of the items record whether the child is engaged in pretending, sociodramatic play, or dramatic play activities, all important components of the Cognitive Curriculum. Another item, routine work, is coded when the child is involved in clean-up activities. Those behaviors which are not categorized into these four items are recorded in the OTHER item. An attempt was made to break down this item into convergent activities and divergent activities. Convergent activities refer to either those activities in which the child has an end product in mind or to those activities that are structured for him. Activities in which the child defines his own goal or in which the activity is not sequentially defined in terms of an end product are referred to as divergent activities. The consultants, however, felt it would be a difficult task to define a child's activity in this way without first talking with the child about the activity, so these activities were coded as OTHER.

Category 12

The number of children in the target child's group or area is referred to in this category. The model provides for small group instruction.

Category 13

Category 13 is twofold. First, it describes whether there is an adult in the area where each interaction occurs. This serves as an indication of how closely available the adults are to the children in the classroom. Second, a category in addition to child-adult, child-child and child-material interactions was needed for cases when the observed child might be daydreaming, sleeping, or staring out the window. The LONE item was incorporated for this purpose.

Category 14

The interest or learning centers are visible parts of the Cognitive Curriculum. Each classroom is organized into a number of centers such as block area or quiet area to encourage interest and self-planned independent work. The location of the observed child, in terms of interest centers or areas, is recorded in Category 14.

Category 15

Another visible component of the Cognitive Curriculum is the daily routine or the way in which the school day is organized. Children spend varying portions of their day in planning and choosing their activities, in carrying out these plans, in representing them and finally in sharing them with their peers. A portion of the day may also be spent in teacher-directed activity, large group activities such as music or story time, and the like. Category 15 records what part or segment of the daily routine corresponds to the activity in which the child is involved.

Observers

Three onsite observers were hired to complete the bulk of the classroom observations. One person from Denver, Colorado (Observer 2) was hired to observe in Trinidad and Greeley, an observer from Florida (Observer 1) observed in Okaloosa County, and in P.S. 92 in New York City; and an observer from New York (Observer 3) observed in P.S. 92 and Okaloosa County. Two persons from the eastern sites attended the classroom observer training session held at the High/Scope Foundation in September, 1972. It was decided that the observer with the highest intercoder reliability and best adaptability to the classroom environment would observe in both sites, spending three weeks at each. The second person would collect two weeks of data at her local center. These data were not to be pooled with the observations done by the full-time observer but would be analyzed separately.* Both observers, however, learned and applied behavior definitions, were at ease in the classroom and demonstrated adequate interobserver agreement. Therefore, both observers observed either for a six-week period and a two-week period or vice versa during the two data collections. The Florida observer spent three weeks in New York and three weeks in Florida during the fall collection. The New York observer had the opposite schedule. She observed locally for two weeks during the fall collection and for six weeks during the spring collection, spending three weeks in Florida and three weeks back in New York.

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* Due to the large volume of results produced from the five major kinds of analyses, there are no plans to analyze these data.

Sixteen applications were received before the three observers were hired. Experience in working with young children and the ability to memorize and apply definitions of behavior were the hiring criteria. Two of the selected staff had classroom experience, one as a teacher, and one as a teacher's aide. The third observer had been involved in police and community work with children. Two of the observers were college graduates. All the observers were female. The Florida and New York observers were black.

The project coordinator, a research assistant with a bachelor's degree in psychology and experience in group testing and data coding, was responsible for the selection and training of the classroom observers. She also spent from one to five days during the fall and spring observations at each center collecting data and observing in the same classrooms with the field staff in order to obtain onsite reliability information.

Observer Training

The classroom observers attended a six-day training session at the High/Scope Foundation in Ypsilanti two weeks prior to the start of the fall observations (October and November). The major portion of this training session was spent in observing children and teachers at the High/Scope TDC and at Pittsfield Elementary School in Ann Arbor, Michigan. The need for observer experience in coding a wide range of teacher and child behaviors was better met by observing at both the public school and at the High/Scope TDC since different types of interactions and behaviors could be observed at each location. The experience of coding behaviors in a variety of situations provided the observers with a frame of reference for coding under similar conditions onsite.

Three half-days were spent observing at the public school; two half-days in third grade classes, and one half-day in a first grade class. Six half-days were spent observing at the High/Scope TDC. (Because students were located in one large room, children in grades one through five were observed.)

The ACI manual was read and discussed the first morning of the training session and observers were instructed in the use of the coding sheets (see Appendix A). The observers were encouraged to express their opinions about the instrument and about the specific coding of certain interactions, and frequently did so. These discussions led to the rewording and clarification of ambiguous definitions.

Reliabilities between each observer and the project coordinator were computed using data collected from one half-day of observation. Discussions then centered on categories of low reliability. The coding sheets were visually checked by the Project Coordinator for incorrect coding patterns, such as coding two mutually exclusive categories (e.g., item LSWT in Category 2 being coded in the same event as an item in Category 5). The sheets were also checked for completeness of the coding patterns (e.g., if Category 8 is marked, Category 9 must also be marked). In this way coding errors were brought to the attention of the observers.

Also scheduled during the training session were slide presentations, the coding of videotapes, and onsite scheduling and observation procedure information. Slide presentations used by High/Scope curriculum consultants for training purposes were used to increase the observers' understanding of the definitions of two of the categories in the ACI manual. These two categories deal with specific aspects of the Cognitive Curriculum: room arrangement and daily routine.

Two half-days were spent coding interactions from videotapes. A videotape showing pretending, dramatic play and sociodramatic play behaviors, all important aspects of the Cognitive Curriculum, provided the observers with experience in recognizing and coding these types of behavior. Two additional videotapes were created by taping simultaneously with observations conducted at the High/Scope TDC. A microphone recorded the observers' audio cue so that the "live" observations could be synchronized with observations made from the tape at a later time. These tapes were used for computing intraobserver reliability.*

Observing schedules, reliability schedules, sampling techniques, notification of teachers, observer behavior in the classroom, and room arrangement diagrams were also explained to observers during the training session.

A second training session was held at the High/Scope Foundation in February. The objectives for this session were to reacquaint the observers with the coding process and the slightly revised observation instrument, and to focus on those items which were unreliable in the first data collection period.

Discussions concerning instrument changes and low reliability items took place the first morning. The following two-and-one-half days were spent observing children and teachers at the High/Scope TDC and at Pittsfield Elementary School in Ann Arbor. Discussions about the low reliability items were continued in the classroom where situations which involved these items were actively sought out and coded.

Observing schedules, reliability schedules, notification of teachers, room arrangement diagrams and observer behavior in the classroom were again reviewed during this training session.

Sample and Population

Twenty-nine first and third grade Follow Through classrooms were observed during the fall data collection. The number of classrooms varied slightly across centers: Okaloosa County, Florida and P.S. 92 in New York City had four first grade and four third grade classrooms; Greeley, Colorado had three classrooms at each grade level; and Trinidad, Colorado had three first grade classrooms and four third grade classrooms. Each classroom was observed for four half-days.

Twenty-eight Follow Through classrooms were observed during the second data collection period. Observations were also made in four non-Follow Through classrooms in Greeley, Colorado. These observations were made to investigate whether differences between classrooms implementing the Cognitive Curriculum and those classrooms not using the Cognitive Curriculum would be detected by the observation instrument. There was no Follow Through program in the school where the control classes were observed thus eliminating any Follow Through influences. The socioeconomic status of these children was similar to that of the Greeley Follow Through children. In order to complete the non-Follow Through observations, it was necessary to eliminate one Follow Through third grade class in Greeley and to reduce by two days the number of observations in the first grade Greeley classes. The number of first and third grade classrooms observed in the other three centers remained the same. Five days of classroom observations were also scheduled at the High/Scope TDC during the spring collection to obtain information about what a more "idealized" version of the Cognitive Curriculum would look like.

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* These reliabilities could not be calculated because many of the behaviors reflected by the ACI occurred too infrequently during these observations.

All teachers observed were females with the exception of one male teacher at P.S. 92. The teachers' experience in using the Cognitive Curriculum ranged from four years to less than a year.

With two exceptions the same Follow Through teachers were observed during each data collection. As mentioned above, one Greeley teacher was not observed because of the time schedule and a P.S. 92 teacher was on a leave of absence during the second collection period. Her replacement was observed instead.

Schools within each site were randomly numbered to determine their order of observation and teachers within schools were randomly assigned to four half-days during which their classroom was observed. This scheduling resulted in some inequalities in the number of morning and afternoon sessions observed in some classrooms. Therefore, for the spring data collection each teacher was randomly assigned to two mornings and two afternoons of observations to insure a more complete and balanced classroom picture. Data collection at each site was flexible, taking from 12 to 15 days depending upon the number of interruptions (e.g., illness, weather conditions, conflicts with class schedules, etc.). The flexibility of the observation schedule was especially useful in Greeley where weather conditions sometimes made it impossible for the observer to commute from Denver.

The project coordinator collected a portion of the classroom observation data in P.S. 92, Okaloosa County and Trinidad since the observers' time schedule did not permit them to visit each classroom four times. As mentioned previously, the project coordinator also spent two half-days at each center observing with the onsite observer(s) for a reliability check. This reliability information was not included in the data analyses. The Florida and New York observers spent four half-days during each collection period coding together for reliability purposes. Again, only the six-week observer's reliability data were used in the site analysis.

In observing the first grade classroom at Washington School, Greeley, the above procedures were modified to accommodate the school's scheduling pattern. The children in these classes rotated among three teachers daily, with each class of students beginning and ending the school day with their home room teacher. They spent the remaining two-thirds of the day with the two other teachers. Rather than observing a teacher for one half-day, during which she would have two to three different groups of students, the observer stayed with the same group of students as they rotated during the day, making note of the change in teachers. Each class of students was observed for two full days.

Observation Procedures

On entering each classroom the observer introduced herself to the teacher and briefly explained the observations (the teachers had already received letters of explanation). Observers also asked the teacher to verify the room arrangement diagram which the curriculum assistants had provided for them. The observer then wrote physical descriptions of each student, in order to identify each child when it was his turn to be observed. The children were numbered for observation using random number tables. Each child in turn was observed for five events, and his behavior was recorded in Cycle A. When this process was complete for all students in the class, the first student was observed a second time, and his behavior was coded in Cycle B. The number of cycles coded per child varied with the number of children in the classroom and the class schedule for that particular half-day.

If the target child left the room while being observed, the observer waited one minute for him to return. If the child returned within the time limit, the observer continued coding. If the child did not return, the remainder of the cycle was left blank. If the target child was not present in the classroom when it was his turn to be observed, the observer waited a minute for him to return and then coded his behavior. If the target child did not return, his sheet was pulled, and the observer coded the remainder of the class for that particular cycle. Then, the missing target child was observed if he was in the room. If he was still not in the room, that cycle was left completely blank, and his sheet was reinserted in the original random observation order.*

Children were not coded during gym, music, and other classes which were not conducted by the regular classroom teachers, with the exception of the Spanish class in Greeley. No observations were conducted during library time, class movies, or rest time.

After each half-day of observation the classroom teacher was asked, "Was this a typical day?" and "Were things different because an observer was in the room?". The responses were used to determine whether the behaviors and activities recorded were, in fact, typical classroom processes (see section on Typical Day Forms below).

In an attempt to describe the affective environment of the classroom, observers were asked to check those adjectives on a checklist which corresponded to their impressions of the classroom, teacher and students after each half-day of observation (see section on Affective Domain Forms). Observers were encouraged to write additional comments about classrooms and teachers if they felt the adjectives did not adequately describe the affective domain of the classroom.

Instrument Revisions

Five of the 15 categories were changed between the two data collection periods. Two categories were eliminated and three were expanded or revised. Discussions with the curriculum specialists about the fall observation data revealed that two of the categories did not provide them with useful information about curriculum implementation. As previously mentioned, the categories describing whether the observed child was using materials passively or actively and whether he was stationary or in motion were eliminated.

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* An exception to this occurred in Washington School in Greeley, Colorado where children were called from classrooms on a daily basis to attend a 20-minute Spanish lesson. If a child was not in the room when it was his turn to be observed, the observer went to the Spanish class and observed him there, providing she could understand what was being said. If the target child left the room in the middle of a cycle to go for his Spanish lesson, the observer followed him, coding his behavior during the Spanish lesson whenever possible.

The category describing the type of material being used by the child was expanded. A distinction was made between reading materials and writing materials and between drawing, painting, or coloring pictures and looking at pictures. The category was thus increased from three to five items.

The second revised category reflected the activity area where the observed child was located. Many of the activity areas or learning centers had to be coded OTHER during the fall collection because they were not identified on the ACI sheets. Items indicating circle areas and language arts areas were added to this category and the item describing the area around the teacher's desk was eliminated because it was coded only 12 times. Four of the areas that were seldom coded (shop, block, sand and water, sociodramatic play) were combined into two items--sand and water, and sociodramatic play, (SOCSND) and shop and block (BLKSHP). Another change was made in Category 12 which reflected the size of the group that included the target child. The item indicating a group size of more than six persons (6+) was changed to a group of six to ten children (6-10), and the item indicating that the observed child was in a group which consisted of the entire class (ALL) was changed to a group size of 11 or more children (11-ALL).

Observation Procedure Changes

One change was made in the observation procedure. Previously, when the Category 2 item (LSWT) was recorded, the observer also recorded the adult's behavior in Category 3 or 4. The coding of the adult's behavior, however, was difficult for the observers, particularly when the adult was facing away from the target child or was in another area of the room. In these situations it was impossible for the observer to hear or see what the adult was doing. During the second data collection the adult's behavior was not recorded when the Category 2 item (LSWT) was marked. Adjustments in the fall data were made for the across-time comparisons.

Discussions with the curriculum specialists about the kinds of information that could be extracted from the instrument brought out two weaknesses in the procedure used to collect the data. First, children in Cognitive Curriculum classrooms are free to make their plans, carry them through, review them and represent them. This aspect of the curriculum implementation cannot be tapped by observing each child for a two-minute period. To gather this information children must be observed for a longer time period. Secondly, information about the teacher is recorded only when the observed child is interacting with her. More information about teacher behavior could be obtained by directly observing the teacher.

The two-week observer in Florida incorporated these changes in her spring observations. She observed five students in each classroom and the teacher. Each teacher was asked which students she did not want the coder to observe and to select three children who she felt were responding well to the Cognitive Curriculum. The coder then randomly selected two additional students, excluding those the teacher did not want observed. Each child was observed for nine cycles or approximately 20 minutes. The teacher was observed for the same amount of time after the fifth child had been observed. After observing the teacher the coder returned to the first child and continued the observation process. The observer spent two full days in each of four classrooms and was able to observe ten children and the teacher for approximately 40 minutes each. Two half-days of observations were also made at the High/Scope TDC using this 20-minute observation procedure.

The 20-minute Florida and High/Scope TDC observation data were compared with the data collected by the six-week observers from these same classrooms using the original observation procedure. This was done to determine if different observation procedures yield similar information about behaviors, activities and interactions that take place in classrooms.

Typical Day Forms

A potential problem in observational research is the possible effect that the observer's presence might have on the behavior of the teacher, aides and children who are being observed. Although it is impossible to determine with any certainty the nature or extent of this effect, it did seem important to obtain at least a subjective report of it. After each half-day of observation, the teacher was asked whether she felt the observer's presence had affected her classroom behavior or her pupils' behavior.

A tabulation of these responses during the fall observations showed that teachers indicated the observer had affected the behavior of the students on only six occasions out of a total of 122 observation periods. In most of the six cases, the teacher reported that the children became more inattentive to the task. In one or two instances the teachers felt a particular child was "showing off" for the observer.

Teachers reported observer effects on their students in only seven of the 122 spring observations. In these instances, they felt that some children were more attuned to the observer than to their classroom activities. There were no indications during either collection period that the observer's presence had affected teacher behavior.

The small incidence of reported observer effect may be due, in part, to the number of persons visiting these Follow Through classrooms. Many teachers reported that the children were so accustomed to having additional persons in the classroom that they paid little attention to them. In the present study, then, the reports of the teachers themselves suggest that any observer effect was negligible.

Another concern in studies of classroom behavior is whether the days selected for observation are representative of normal days. The data provide a partial answer to the question (see section on Day-to-Day Variations). In order to obtain another indication of this, the teachers were asked after every observation period, "Was this a typical day in your classroom?". Eighteen of the 122 fall observation periods were marked by the teachers as being "atypical". Some of the reasons given included: the children were excited about an afternoon party, an aide was absent, the children were hyperactive because they missed their lunch recess, and the absence of many students due to contagious disease (chicken pox) or a special holiday (Black Solidarity Day). Twelve of the 122 observations made in the spring were said to be "atypical", but there were only three instances in both fall and spring when a teacher felt that her class was "atypical" for more than one of her four observation days.

On the whole, it seems that the observation data reflect behaviors, activities and interactions usually seen in the classrooms. Thus, the four observation periods per classroom provided a representative picture of teacher and student behaviors.

Affective Domain Forms

The requirement that behaviors in observation systems be operationally defined makes it extremely difficult to include variables dealing with the affective aspects of the classroom. Because of the difficulty in operationally defining such variables as "interested", "friendly", and "respectful", it was decided not to include them on the ACI. Instead a general indication of the occurrence of these kinds of behaviors was obtained by the use of a separate checklist (Affective Domain Forms) developed by the curriculum specialists. The checklist included the following categories:

- Classroom
    - comfortable
    - mechanical
    - informal
    - interesting
- Students
    - respectful of teachers and other students
    - involved with activities
    - interested in activities
- Teacher
    - controlling
    - uncertain
    - respectful of students
    - concerned about students
    - unfriendly toward students
    - interesting
    - involved with students
    - unavailable to students

The observer checked the adjectives on this checklist which were most similar to her impressions of the classroom, the teacher, and the students after each half-day of classroom observation. The observers were also encouraged to comment on activities and classroom events which they felt might provide a better and more complete picture of the affective domain of the classroom.

Different forms of the checklist were used in the two data collections. The fall checklist pertained to the classroom as a whole, whereas the spring checklist pertained to three separate components: the teacher, the students and the classroom. The checklist was given to the consultants whose centers were involved for their information.

The fall tabulations of these forms showed that the classroom and teacher were most often described as "comfortable", "informal", "respectful", "concerned" and "controlling".

During the spring data collection the classrooms were marked more often as being "comfortable" and "informal" and less often as "mechanical" and "interesting". The students were most often described as "respectful of others" and "involved with activities" and less often as "interested in activities". The teacher was most often described as being "involved with", "respectful of", and "concerned about" students, and less often as being "unavailable to students", "unfriendly toward students", and "uncertain" of her teaching role.

Data Processing Procedures

The observation data were mailed weekly to the High/Scope Foundation's data processing department. The processing procedure involved checking in the received data, assigning each sheet a unique identification number, punching the data onto tape, verifying the data printouts and making corrections. The verifying segment of this procedure was changed slightly during the spring data processing. Because of the very low number of punching errors during the processing of the fall data, the decision was made to verify every ID number and every fifth line of actual data.

The data were processed on the High/Scope 2741 IBM terminal which is connected to the IBM 360/67 computer at the University of Michigan Computing Center. The Affective Domain and Typical Day forms were tabulated by hand.

Reliability

The percent agreement method of computing reliability was used in this study. This method consists of taking the number of times each observer codes a specific behavior and dividing the smaller number by the larger number to get a percent. If observer A recorded behavior "x" 25 times and observer B recorded "x" 20 times, the percent agreement for that item would be 20/25 or 80%.

Those items with a frequency equal to or greater than five and a reliability of less than .70 were not included in the analysis since .70 was used as the base line for acceptable reliability. Items with a frequency of less than five were not analyzed unless they could be conceptually combined as was the case with the control items in Category 3. Only those items or combined items with a frequency of greater than or equal to five and a reliability of greater than or equal to .70 were included in the data analysis.

Reliability Data Collection

When considering the reliability of observation procedures it is important to be alert to changes in interobserver agreement over time. In particular, the concern is that there may be a decline or decrease in coder agreement after initial coding reliabilities have been established. Continuous monitoring of observers while they are conducting their observations in field settings is necessary to determine interobserver agreement at the time the data are actually being collected. Training week reliabilities are necessary for determining whether or not the observers have enough preparation to begin observing, but they are not adequate as an index of the reliability of the data. Onsite reliability estimates are concurrent with the ongoing data collection and should better represent the reliability of the data collected in those settings and with the population that is under investigation.

Reliability figures reported in this study were gathered from the September training session, from onsite observations between the project coordinator and each observer, and from onsite observations between New York and Florida observers (Observers 3 and 1 respectively). The training week percent agreements were computed from two days of simultaneous observation, one day at the TDC and one day at Pittsfield Elementary School. The onsite reliability coding consisted of four one-half days during each data collection period; these four one-half days of simultaneous coding were done in two sites. For example, half of the reliability data between the Denver observer (Observer 2) and the project coordinator was collected in Greeley and half was collected in Trinidad. The item and interaction type frequencies of the four one-half days were combined to produce the interobserver percent agreement. The two east coast observers coded together at one site for four one-half days during each data collection period. Due to transportation costs and tight observation schedules no onsite reliability observations were done between the Denver observer and the east coast observers.

Reliability Results

Percent agreement was computed for each item within a category and for the eight major interaction types. An interaction type describes who or what the target child was interacting with during each event, whether it was an adult, another child or material. It is determined by examining four categories of the ACI, Categories 1,6,9, and 13. A mark in Category 1 indicates that an adult was involved in the interaction, Category 6 indicates that another child was involved in the interaction, Category 9 indicates that the target child was using materials,and Category 13 indicates that the child was not interacting with adults, children or materials. For example, if Categories 1 and 9 are coded for an event and Categories 6 and 13 are not, the interaction is called a child-adult/child-material interaction. If only Category 1 had been marked the interaction type would be child-adult.

Training week reliability. A training week reliability was calculated for each pair of observers. A mean pairwise reliability was then obtained by adding each item and interaction type reliability for the six pairs of observers and dividing that number by six, the number of pairs of observers.

These mean pairwise item reliabilities reported in Tables 1 and 2 showed that observer disagreement occurred most often in those categories that described the teacher and child behaviors during child-adult interactions, the activity the child was involved in, the daily routine and situations in which the child was not involved in child-adult, child-child or child-material interactions.

Fall onsite reliability. Most of the disagreements between the project coordinator and each observer during the first data collection period were in categories reflecting the child's behavior during child-adult interactions and child-child interactions, the adult's teaching behavior and the nature of the child's activity (see Tables 3 and 4). The observers also had difficulty in agreeing when a child was not involved in a child-adult, child-child or child-material interaction. In some situations it was difficult to decide whether a child was daydreaming or was watching another child.

Most of the disagreement in the adult's teaching behavior was with respect to the kind of questions being asked. The observers agreed that a question was being asked but disagreed on what type of question it was. The observers also disagreed on when an adult was helping or doing something for a child. Disagreement in behaviors occurring during child-child interactions most often centered on whether two children were involved in an interaction in which no materials were used. Pretending, sociodramatic and dramatic play activities were also sources of disagreement in describing the nature of the children's activities.

The two east coast observers also disagreed with each other on the child's behavior during child-adult interactions. That is, whether the child had initiated an interaction with an adult or whether he was attending to an adult who was not paying attention to him. The type of controlling behavior the adult used was another area of disagreement between them (see Tables 5 and 6).

It should be noted that some of the highest and lowest reliabilities were found in items of low frequency. If the frequency was less than five, one agreement or disagreement could greatly alter the percent agreement. With frequencies greater than five a few agreements or disagreements do not alter the percent agreement so greatly. Because of the instability of the percent agreement for these low frequency items they were not included in the data analysis. Only items with frequencies greater than four were used in the analysis. It is recognized that psychologically sound behaviors are not always expressed in high frequencies. Unfortunately, if a stable reliability cannot be calculated it does not seem legitimate to analyze those categories, even though the effect of those behaviors, however infrequent, may have been great.

Spring onsite reliability. Some of the areas of disagreement during the spring data collection period were the same as those described in the fall reliability section. The observers still had difficulty in agreeing whether a child was daydreaming or interacting with someone or something, whether a child was interacting with peers without using materials, and whether children were engaging in pretending, sociodramatic or dramatic play activities. Additional areas of disagreement in the spring were the controlling behaviors used by adults and the daily routine (see Tables 4 and 7).

The only disagreement between the two east coast observers during the spring data collection was whether an interaction involved physical contact (see Tables 6 and 8).

Reliability of combined items. In some cases one or more of the items in a category were combined in the analysis. These combined items and their reliabilities are reported in Table 9 and are described below.

1. Three of the Category 1 items, TAA, OBS and OTH, were

combined in the data analysis. Distinctions between classrooms or centers in the amount of time pupils interacted with each of these "nonregular" classroom personnel were not important.

2. All the items in Category 3, NEGCT, POSCT and PROCT, were combined to form a "control" item. The low frequency of these items during the reliability codings necessitated combining them to produce a stable percent agreement. This item, "control", was included with the Category 4 items in the analysis.

3. Two of the Category 4 items, divergent questions (QDVG) and convergent questions (QCVG), were combined in the analysis of the fall Trinidad and Greeley data, in the fall across-center comparisons, in the across-time comparisons of these two sites, and in the TDC-field class comparisons.

4. The AA and OAA items in Category 1 were combined in the across-time comparisons since no attempt was made to code a particular aide as either AA or OAA for both observation periods.

5. The revision made in Category 10 before the second data collection (Category 12 on the fall coding sheets) made it necessary to combine the fall items of 6+ and ALL into a 6+ item and to combine the spring items of 6-10 and 11-ALL into a 6+ item for across-time comparisons of groups containing more than five pupils.

Data Analysis Procedure

Descriptive Analysis

Selected categories and interaction types of the ACI are the variables used in the data analysis. The frequency and percentage occurrence of each behavior defined by the ACI categories and the eight interaction type were computed for both the fall and spring data collection.

As explained here, it was not possible to analyze all of the observation categories. The fall data analysis does not include Categories 2, 8, 10, 11, 13 or 14. The items in Category 2 were unreliable; Categories 8 and 10 were deleted from the instrument before the spring data collection and would therefore not have provided comparable data;

Category 11 had to be eliminated because some items were coded so infrequently that no percent agreement could be computed; Category 13 was coded incorrectly in Greeley and Trinidad and was unreliable in New York and Florida; and Category 14, which identifies the interest center the target child was in, was not analyzed. The kind and number of centers each teacher establishes turned out to be so varied that it would be meaningless to compare classroom interaction as a function of the child's location in the room. In addition to these categories, Category 6 could not be included in the Greeley and Trinidad analysis because the items were unreliable.

For the spring analysis, Categories 9, 11, and 12, which correspond to Categories 11, 13 and 14 on the fall coding sheet, were not included. Some of the items in Category 9 were unreliable and others occurred so infrequently during reliability observations that no stable reliability could be calculated. Category 11 items were unreliable in New York and Florida and were coded incorrectly in Trinidad and Greeley. Category 12 which identified the interest center the child was in, was not included in the analysis for the same reason it was not included in the fall analysis. Two additional categories, 2 and 7, could not be analyzed for the New York and Florida data because of low item reliabilities.

In addition to the above categories, for both fall and spring data analysis, there are some interaction types and items within categories that could not be included in the analysis because of low reliability.

Inferential nalyses

Several complementary statistical procedures were used to analyze the categorical data provided by the ACI. The procedures were the Pearson chi square statistic (and two modifications of the Pearson chi square), measures of association, and confidence intervals for multinomial proportions. The procedures are complementary in that they each provide somewhat different information about the relationships in a contingency table, and all have shortcomings that are somewhat compensated for by the others. Contingency tables constructed from those ACI categories that could be included in the analyses were analyzed by all three procedures.

The Pearson chi square was the starting point of all the analyses with the other procedures used to fill the gaps. The chi square statistic tests for independence of the variables that were used to construct a contingency table. One way of conceptualizing the chi square is as a simultaneous test of several multinomial distributions to determine the degree of of similarity between them. For this study the categorical variables were the four Follow Through sites, the selected categories of the ACI and some interaction types. The chi square value is calculated using the observed frequencies for each cell and the expected frequencies which are determined by the marginal totals of the contingency table. The obtained value of chi square along with the degrees of freedom for the table (based on the number of rows and columns in the table) can be used to determine the probability that the category an element of the table is assigned to on one variable is independent of the category to which it is assigned on the other variable.

The requirements for using chi square are that there be a relatively large sample size, that the categories be independent and exhaustive, and that the observations be independent. The categories on the ACI sheet are independent and exhaustive by definition. The requirement that each observation be independent was met since this study is concerned with the individual behaviors that occur in a classroom and not the individual children in the classroom. The behaviors recorded are conceptualized as a random sample from the population of behaviors that occurred in the classroom and each element of behavior had the same chance of being selected. This viewpoint represents a conceptual shift as to what constructs population understudy. See Chassan (1961) and Chassan and Bellack (1966) for further explanation of treating behaviors as populations rather than individual subjects.

The shortcomings of the chi square statistic that were encountered in this study were the effect of the large number of observations, the inability of chi square to measure the strength of association, and the difficulty involved in using chi square to isolate individual cells of a table that contribute most heavily to the variability of distributions. The chi square statistic is one which is highly sensitive to the number of observations; by increasing the frequencies in each cell of a contingency table the chi square value is also increased even though the proportion in each cell remains unchanged (see Blalock, 1960, for a clear discussion of the problem). Since, for some analyses the number of observations for each grade used in each center was approximately 2,500, it is expected that the null hypothesis of no statistical significance would be rejected for many of the contingency tables, even in situations when the association between variables is very low. The chi square indicates whether or not variables are independent, but does not measure the degree of the association. Two measures of association, tau and lambda, described by Goodman and Kruskal (1954), were used in this study (this tau should not be confused with Kendall's tau).

Both measures indicate the proportion of error reduction gained when trying to predict which cell of a contingency table an element should be assigned to. The error reduction is based on the following procedure: given the element's category on one of the variables, can the category it belongs to for the other variable be predicted with greater accuracy than if there is no knowledge at all about the element? For example, a value of .25 in one of the measures indicates that 25% fewer errors would be made in predicting which cell a behavior belongs to if either the behavior itself or the site in which it was observed was identified as opposed to no information at all about the behavior. Both tau and lambda have asymmetric and symmetric forms. The asymmetric form is somewhat analogous to regression where the coefficients obtained will be different for predicting variable B given variable A, then vice versa. The symmetric form of the statistics is more analogous to the correlation coefficient where degree of relationship between two variables is measured. Since the object of this study was to determine if the variables were related in any sense rather than in a cause and effect manner, the symmetric form was used.

Both tau and lambda have the same requirements for use: there must be two multi-category variables to assign elements to, there is no relevant underlying continua, and there is no natural property in common; that is, the range of attainable values for both statistics is 0 to 1 inclusive. There is also an important distinction; both are 0 in the case of statistical independence but lambda will also be 0 when the maximum frequencies of a contingency table lie in one row and in one column, even though statistical independence does not hold. Tau is 0 if and only if there is statistical independence (see examples below).

The difference between the two statistics is the basis for the predictions. Each assumes optimal prediction but the criteria defining optimal prediction is different. Lambda is calculated using minimum number of errors as the basis for the prediction but tau is calculated using reconstruction of distribution as the basis for the predictions.

Therefore, the interpretation for a contingency table that simultaneously has a zero lambda and a nonzero tau is that the category predicted for an individual on one variable is not affected by knowledge of the other category if minimum number of errors is the criteria for prediction. The prediction is influenced if reconstruction of the distribution is the criterion.

The following pair of contingency tables indicates the impact of sample size on chi square, for lambda and tau. The tables have identical distributions proportionally but the values in Table B are ten times the equivalent values in Table A.

Table A

	A(1)	A(2)	
B(1)	5	15	20
B(2)	15	16	31
	20	31	51

chi square = 1.895
tau = .0547
lambda = .0

Table B

	A(1)	A(2)	
	50	150	200
	150	160	310
	200	310	510

chi square = 26.922
tau = .0547
lambda = .0

This example illustrates the sensitivity of chi square to sample size and the stability of tau and lambda. Table 1 has a nonsignificant chi square, a tau greater than .05, and a zero lambda; Table 2 has the same proportions in each cell as Table 1, but the number of observations is ten times greater with the result being a highly significant chi square (beyond .0001). Both tables have the same tau value and zero lambdas. The implications of this are that the higher N provides a greater degree of certainty that the variables A and B are not independent but does not increase the degree of association. Lambda is zero because with the criterion of minimum number of errors of prediction, the cells with the highest frequency would be predicted. For example, if one were to attempt to predict the B category for an individual, he would choose B(2) since the chance of making an error would be less there than for B(1) since over 3/5 of the individuals are in B(2). Knowledge of the individual's A category would not influence our choice of a B category. The same thing would be true if we were attempting to predict the A category for an individual. However, if the criterion for prediction was to attempt to reconstruct the distribution, knowledge of the category would be helpful since the relative proportions are different for each category.

Chi square and the measures of association provide information about the independence of the variables and the relative degree of relationship but the problems of individual cells and other subsets of the data are not answered by these procedures. It is possible that a relatively small number of cells or perhaps even a single cell in a contingency table can contribute sufficient variability to a distribution to cause the chi square value calculated from the entire table to be significant. Although there is no significance level attached to the measures of association, it is still possible that one or a few cells of a table could have a relatively large effect on the obtained values. These procedures, (Bresnahan and Shapiro, 1966) and (Smith, 1966) can also be used to isolate cells but the procedures are some what laborious. In order to filter out the effects of categories that had low reliability, categories that did not have reliabilities calculated, and cells with low expected frequencies the Bresnahan and Shapiro procedure was used. This method of calculating chi square uses the marginals from the entire table to calculate expected frequencies but the chi square value is calculated using only the cells of interest. This chi square formula contains terms to correct for lack of goodness-of-fit in the margins. The chi square value calculated by this method "can be regarded as the contribution of the table remaining to the chi square of the original table" (Bresnahan J., and Shapiro M., 1966, pg. 260). The degrees of freedom are the same as they would be if the cells omitted from the chi square calculation were pooled or discarded.

In order to test hypotheses about subsets of a contingency table the procedure described by Smith (1972) was used. This procedure is completely analogous to the Sheffe procedure in analysis of variance. The Smith formula is identical to the Bresnahan and Shapiro formula but uses the degrees of freedom from the original contingency table. Goodman (1965) suggested using confidence intervals to detect differences in proportions within a multinomial distribution. This method can be extended to compare differences across corresponding cells of several multinomial distributions.

This means that the population parameter for each category will fall within the interval with a probability of at least .99 (1 - alpha). Therefore, in comparing confidence intervals for corresponding categories between two distributions it is only necessary to determine if the confidence intervals overlap to determine the probability that the population parameters could be equal. In the case where the confidence intervals for corresponding categories of distributions do not overlap, the probability that the population parameters are equal is less than .02. Since it is known that the probability of each confidence interval containing the population parameter is .99, the joint probability of both confidence intervals simultaneously containing the population parameters is .99 x .99 or .9801. Therefore, the probability that corresponding categories with nonoverlapping confidence intervals have equal population parameters is less than 1 - .9801.

An examination of the figures that were produced from the confidence intervals can quickly indicate which categories were significantly different (alpha - .02) both within a single distribution or between categories of different distributions.

Day to Day Variations

In addition to comments from teachers themselves (see section on Typical Day Forms), another indicator of whether the days selected for observation are representative of all other days can be obtained by comparing the behaviors recorded during the first half of the observation made in each class with those behaviors recorded during the second half of the observation in the same class. If the classrooms look similar from one day of observation to the next, one can assume that the picture presented by the observations is in fact a stable one.

With the exception of Greeley, one first grade class and one third grade class were randomly selected from each center for these day-to-day comparisons. None of the first grade classes in Greeley were selected because the school scheduling made it difficult to divide the observation into half-day periods. Each of the classes selected had been observed in the spring for two mornings and two afternoons. The data from the first morning and the first afternoon of observation in each of these classes were combined as were the data from the second morning and afternoon of observation. The "first" day was then compared to the "second" day on each of the ACI categories and the interaction types. Because not more than one coder observed in each of these classes all the categories could be included in these comparisons. However, the low frequency of Category 2 items and Category 13 items prevented them from being included in the analysis for specific classes.

The amount of day-to-day variations in six of these seven classes was slight. The small number of observations involving adult teaching behavior (Category 4), the kind of attention given by adults (Category 5), and certain interaction types, however, should be noted.

Two of the classes showed significant changes in only one variable. An item in Category 12 changed across the two days of observation in class 1, and class 2 varied only in an interaction type. Four other classes varied only slightly more: two items in Category 4 and an interaction type changed in class 3; in class 4 one item in both Category 1 and Category 9 varied; and Category 12 items and the interaction type varied across the two observation days in classes 5 and 6. The greatest amount of variation occurred in class 7 in which the identity of the adults the child interacted with, the kind of attention children received, the type of materials used, and the interaction type, changed significantly across the two days of observations.

With the exception of the one first grade (7), the classes looked very similar when observed at different time periods. The amount of day-to-day variation was minimal and it can be concluded that the observations did provide stable representative pictures of teacher and student behavior.

The amount of day-to-day variation in classrooms in which the 20-minute observation procedure was used was also examined. One classroom varied only slightly with one item in Category 12 and one in Category 1 changing. The amount of variation for the other classes, however, was greater.

The four classes varied across the two days of observation with respect to the adult the child interacted with and the size of the group that included him. The kind of material children used varied across two classes as did daily routine. Interaction type varied in one classroom.

These variations may be due to the fact that different children were observed on each observation day. Using the standard observation procedure, which showed little day-to-day variety, the observer watched the same children on each day of observation.

Comparisons of Two Observation Procedures

As previously mentioned, the curriculum specialists felt that the observation procedure had two shortcomings: the limited amount of observations made on each child and the lack of direct observation of the teacher. The observation system does focus on the adults in the classroom but only when the observed child is interacting with them.

During the spring observation period, the Florida coder collected data in four classrooms, observing five children and the teacher for 20-minute intervals (see section on Observation Procedure Changes for more information regarding the selection of these children). The project coordinator also observed first grade and third grade students in the TDC using this procedure. Comparisons were made of the data collected using this observation procedure with the data collected using the standard observation procedure. The observations that focused directly on the teacher were not included in the 20-minute observation data used in these comparisons since the teacher was never the "target" during the regular observation procedure. Categories 4 and 15 could not be included in the comparisons for three of the six classrooms.

These comparisons indicated that the two observation procedures did present different pictures of four of the six classrooms. The amount of daily variation in the 20-minute observations, however, should be considered.

One classroom in Florida showed no differences in teacher and child behaviors when the two observation techniques were used and the third grade in the TDC differed only in the size of group the children were in. The other four classes, however, did not look similar when these two observation procedures were used. The size of the group children were in and the type of material used changed in two. Other differences in the amount of time spent in large group, teacher-structured activities and the amount of time spent passively interacting with peers were unique to particular classes.

These comparisons indicate that different observation procedures present different pictures of the same classrooms. It is difficult, however, to say which procedure provides the more accurate classroom picture. At least part of the difference is due to the greater day-to-day variation found in the 20-minute observation procedure.

RESULTS

Organization of Results Section

Because of the large volume of results produced from the data analysis, only summaries of the five major kinds of analyses are presented in this section. These include summaries of the fall data analysis, the spring data analysis, analysis of fall-spring comparisons, analysis of TDC-field class comparisons and Follow Through/non-Follow Through comparisons. A more detailed description of the results from these comparisons is reported in Appendix C, along with figures of Goodman's simultaneous confidence intervals for the comparisons. The comparison of outcome measures with process variables is also reported in this section.

The summaries of the fall and spring data analyses describe how those classes that were rated (either by curriculum assistants or field consultants) as well-implemented differed from those classes that were rated less well-implemented. The curriculum assistants, who are familiar with the Cognitive Curriculum and with the individual classrooms, used the Implementation Matrix to rate each classroom in the fall and spring. The Implementation Matrix is a procedure developed by the High/Scope Follow Through curriculum and research staff for obtaining global ratings on 15 variables related to the operation of a model classroom. The levels at which classrooms could be rated on the 15 variables are shown in Figure 1. For a more complete description of the procedure for using this matrix to assess implementation see Volume II of the 1973 Year End Report. For comparisons with observation data, a mean implementation score was obtained for each class. The highest- and lowest-rated classrooms for each center with each grade level were identified and compared.

Because of incomplete spring ratings by the curriculum assistants, the field consultants' ratings were used to identify the best-implemented classes and least well-implemented classes during the second collection period. Field consultants are High/Scope Follow Through curriculum specialists who work closely with curriculum assistants and teachers in a particular

Figure 1: Classroom Implementation of the Cognitively Oriented Curriculum: Matrix

		A	T*	B	T*	C	T*	D
	VARIABLE	1 2 3	4	5 6 7	8	9 10 11	12	13 14 15
1	ROOM ARRANGEMENT	Teaching stations but no learning centers		Teaching stations plus 1 or 2 learning centers without a specific focus		Teaching stations and learning centers; activities stimulating but unrelated to each other		Integration of teaching stations and learning centers so that they become one and the same
2	DAILY ROUTINE	Children rotate among teaching stations		Children rotate among teaching stations and 1 or 2 learning centers (usually used for free play or busy work)		One-half day teacher initiated (group time); one-half day pupil initiated (work time)		Integration of entire day. Individualized and small group instruction is related to child's activity at learning centers
3	CHILD PROCESS *Plan*	No opportunity for planning		Children assigned to center by adult or may choose but are required to get to all centers		Child chooses center but makes no specific plan for activity		Child makes choice of center and dicusses plan with teacher
4	*Work*	No work time		Adult assigns activity to be done at center		Work undertaken varies with passing interest		Child completes plan
5	*Represent*	No opportunity for representation		No representation, or representation directed by teacher		Superficial representation at child's discretion		Child represents experience in his way
6	*Evaluate*	No opportunity for evaluation		No evaluation, or simple reporting of presence at a center		Voluntary show and tell or mandatory reporting		Child evaluates plan and uses evaluation to make new plans, to extend or modify previous plans
7	DAILY PLANNING & EVALUATION *Process*	No daily planning occurs or head teacher does planning		Team plans together but each member for his own area		Team integrates plans. No development evaluation of individual children		Planning and evaluation are a result of group process
8	*Outcome*	Same lessons and activities for all groups. Child involvement determined entirely by teacher		Activities planned for different groups. Children grouped in some arbitrary way. Child involvement determined largely by teacher with some child-initiated activity		Activities and grouping are a direct outcome of team evaluation of *activities* rather than child evaluation. Child involvement is self-initiated but unrelated to teacher's evaluation		Planning for individual children is a result of ongoing team evaluation. Child involvement is self-initiated but related to teacher's evaluation

Figure 1: Classroom Implementation of the Cognitively Oriented Curriculum: Matrix
(continued)

9	***Basis***	Concern for skill development and grade level expectation	Concern for skill development and grade level expectation but allows for some diverse activities based upon individual differences	Awareness of the importance of real experiences and the application of levels of representation and cognitive structures	Integration of levels of representation, cognitive structures and skill development
10	TEACHER DIRECTION	Teacher domination and control of content and process	Teacher direction with opportunities for children to choose among restricted alternatives	Teacher provides little direction but allows for peer interaction and interaction with materials	Teacher directs by structuring the environment so that children can initiate activities and work independently; teachers serves as a resource
11	CHILD-TEACHER INTERACTION *Teacher-Initiated Instruction*	No opportunities for child-initiated activities	Few opportunities for child to initiate activities but within planned activity there is room for divergent responses	Strong evidence of divergent responses during individualized and small group instruction	Divergent responses used as a basis for further individualized and small group instruction
12	*Work Time*	No work time	Children's alternatives and behavior mostly structured by teacher	Most activities initiated by child; little teacher interaction	Child chooses activity. Teacher interacts with child
13	LEARNING EXPERIENCES *Skills*	Dominated by skill development and grade level expectations	Dominated by skill development and grade level expectation but allows for some differences in ability	Skill development incidental; follows no particular sequence	Skill development integrated with other activities as a result of individual child's needs
14	*Cognitive Development*	Experiences determined by grade level expectations	Experiences determined by grade level expectations but allows for some differences in ability	Experiences determined by child interest; some teacher awareness of child's cognitive development	Experiences determined by teacher's recognition and understanding of child's level of cognitive functioning and interest
15	*Commercial Materials*	Commercial materials not used or used inappropriately	Commercial materials predominate; followed like a cookbook	Commercial materials used as a resource	Commercial materials complement each other and support other classroom experiences

T* = transition between levels

center to facilitate the understanding and implementation of the Cognitive Curriculum.

Also included in these summaries are those characteristics which differentiate particular centers from the other centers.

Those classroom variables which changed most consistently across the two data collection periods for each center are reported in the fall-spring comparisons. The ways in which the field classes differed from the TDC are reported in the summary of the TDC-field class comparisons and the teacher and child behaviors which differentiated the Follow Through classes from the non-Follow Through classes are discussed in the summary of the Follow Through/non-Follow Through comparisons.

Summary of Fall Data Analysis

The variables which distinguished the first grade well-implemented classes from the less well-implemented classes were not consistent across the four sites. That is, the variables that differentiated the well-implemented first grade class in Trinidad from the least well-implemented class were not the same variables that differentiated the well-implemented first grade classes from the least well-implemented classes in the other three centers. The highest- and lowest-rated classes in two centers, however, did look similar. Children in the well-implemented classes in Trinidad and Florida were often involved in teacher-directed or teacher-structured activities whereas the children in the lower-rated classes were often involved in self-selected activities. Children in the less well-implemented classes in both Greeley and Florida were more often in small groups.

The highest-rated third grade classes in each of the four centers looked similar as did the lower-rated third grade classes. The children in the well-implemented classes were usually involved in activities of their choice and were more often in small groups. The children in the less well-implemented classes were usually involved in teacher-directed activities and were more often in large groups.

Across-center comparisons of the fall data showed that Greeley first grade classes were more teacher-directed than first grades in the other centers. Compared to other first grade students, the children in this center were also less often in groups containing the entire class and were more often in groups containing more than five students. Children in the third grade classes in this center, however, were more often involved in activities of their choice and less often involved in teacher-directed activities than other third grade children. Child-material interaction also occurred more frequently in these third grade classes than in other centers.

There were no consistent differences between children in the first grade classes in Trinidad and children in other first grade classes. The third grade students in this center, compared to third grade students in other centers, were more often involved in teacher-directed or teacher-structured activities, interacted more often with adults, and interacted less frequently with both children and materials.

Individual attention and small groups characterized the first grade classes in Florida. Groups containing the entire class characterized the third grade classes in this center. Both the first grade classes and the third grade classes in New York were characterized by child-child/child-material interactions. These students used materials in their interactions with peers more frequently than students in the other three centers. The first grade students in this center interacted less frequently with just materials and more reading and writing activities were observed in the third grades in this site than in the other sites.

Summary of Spring Data Analysis

The characteristics which differentiated both the first grade and third grade well-implemented classes from the less well-implemented classes were not consistent across the centers. The variables that described the best implemented first grade class in Greeley were not those that described the best implemented classes in Trinidad, Florida, and New York. Only one characteristic, small groups, was common to the well-implemented first grade classes in New York and Trinidad.

Two of the well-implemented third grade classes had common characteristics. Child autonomy and small groups characterized the Trinidad and Greeley classes.

The number of unique characteristics of each center decreased during the spring observations. Across-center comparisons showed that the first grade classes in Florida and New York were more child-directed than the Trinidad and Greeley first grades. The New York students in both the first grades and third grades again used materials in their interactions with their peers more often than students in other centers. The third grade students here also interacted more often with their peers, received less individual attention from adults, and were more often in large groups. Trinidad first grade students read more often than other first grade students and used object materials less often. They were also more often in small groups. Greeley third graders were distinguished by the relatively higher frequency of child-material interactions and the relatively lower frequency of child-adult/child-child/child-material interactions.

Summary of Fall-Spring Comparisons

The Trinidad first grade classes were more teacher-directed in the spring than in the fall. The children in these classes were less often in activities of their choice and were more often in small groups during the second observation period. They also had fewer child-adult interactions and interacted less frequently with the teacher when they did interact with an adult. The children in the Trinidad third grade classes used more object materials in the spring and were more often in small groups. They also had fewer child-adult interactions during the second observation period.

The Greeley first grade children were more autonomous in the spring than in the fall. They were more often involved in activities of their choice in the spring and also used object materials more frequently. There were no consistent changes in the third grade classes in this center across the two data collection periods.

Child-autonomy was also descriptive of the Florida first grade classes in the spring. The children in these classes were more often involved in self-selected activities during the second data collection period than during the first. Small groups also characterized these classes in the spring as did child-adult/child-child/child-material interactions. Children in these classes were less often involved in child-adult/child-material interactions during the spring and when they interacted with an adult, it was less often the teacher. The children in the third grade classes in this center used object materials more frequently in the spring and were more often in small groups of three to five students.

The only change in the first grade in New York was the size of the group children were in. During the spring New York first graders were more often by themselves and less often in groups containing more than five students. The third graders in this center spent less time in activities of their choice during the second observation period. Fewer large groups were observed during this collection as were fewer reading and writing activities.

Summary of Analyses of TDC-Field Class Comparisons

Three variables, behavior during child-child interactions, material type, and group size, consistently differentiated first and third grade field classes from the TDC. Children in the four field sites were not as task-oriented during child-child interactions as the TDC students. In these classrooms there was more occurrence of children passively watching other children and less occurrence of active child-child interactions in which materials were used. These kinds of behaviors during child-child interactions differentiated about one-third of the field classes from the TDC.

More than one-half of the field classes differed from the TDC in the amount of time object materials and reading materials were used. Children in the field classes were more often involved in reading activities than children in the TDC, whereas the TDC children used object materials more often than the students in many of the field classes.

The first grade classes and the third grade classes differed from the TDC in different ways with respect to group size. The children in first grade classes were more often in groups containing more than 11 students or the entire class than first graders in the TDC, and the third grade students in the field classes were more often in groups containing from three to five students than the TDC third graders.

The first grade and third grade students in the TDC were more actively involved in interactions with their peers, used materials in these interactions, and read less often than students in the first and third grade field classes. The first graders in the TDC were also less often in large groups containing more than 11 students and the third grade students in the TDC were less often in small groups containing from three to five students.

Summary of Follow Through/Non-Follow Through Comparisons

Both the first grade comparisons and the third grade comparisons of Follow Through and non-Follow Through classes produced similar results. The children in the Follow Through classes were given more individual attention by adults, were more often in small groups and more often used materials during their interactions with other students. The adults in the non-Follow Through classes usually interacted with a group of students rather than with individual students. The students in these classes were usually in large groups and were often only passively involved with their peers.

The picture presented by the observation data for the Follow Through classes is one in which small groups of children are actively involved with both peers and materials and receive individual attention from adults during these interactions. The picture the observation data present of the non-Follow Through classes is one in which the teacher is addressing a large group of children who are sometimes attending to her and sometimes watching other children.

Comparisons of Outcome Measures with Process Variables

To investigate whether a relationship exists between outcome measures and process variables, the observation data on children with high Stanford-Binet (S-B) test scores were compared with the observation data on children with low Stanford-Binet test scores. A random sample of children in each center and at each grade level who have been in Cognitively Oriented Curriculum classes since their start in elementary school receive the Stanford-Binet as part of the High/Scope Foundation's sponsor evaluation procedure. This information was available for 19 of the classrooms involved in this study.

The number of children in each class receiving the Binet varied from six to 16. Since the standard deviation of the mean score was large for each class the mean could not be applied to the entire class. Instead, only the observation data of the children receiving the S-B were analyzed rather than the observation data of the entire class. The mean S-B score for each classroom was computed and those scores above and below the mean were labeled "high" and "low" respectively. Student's t tests indicated that the mean S-B score of the "high" group and the mean of the "low" group differed significantly from each other in each of the 19 classes, indicating that the "high" and "low" groups actually differed from each other in terms of the Stanford-Binet. The mean S-B score of the "low" group ranged from 68 to 95 for the 19 classrooms and the mean of the "high" group ranged from 82 to 121.

The next step was to compare the observation data from the "high" and "low" groups. Since the number of children receiving the S-B was small and since the number of observations per pupil was small, only those categories that had sufficient frequency to analyze could be included in the comparisons. The following categories were analyzed: Category 6 which described child-child interactions, Category 9 which indicates the type of material used, Category 12 which reflects the size of the observed child's group, and the interaction type which indicates whether the observed child was interacting with an adult, another child, or material.

The results showed no differences between the children in the "high" and "low" S-B groups in the kind of materials they used, in their behavior during child-child interactions, or in the frequency with which they interacted with adults, children, and materials. Category 6 comparisons were made in all 19 classes, Category 9 comparisons were made in 13 classes, and interaction type comparisons were made in 17 classes. Low expected frequencies accounted for the varying number of classrooms that could be included in the comparisons.

Category 12, group size, differentiated the "low" from the "high" group in four of the 18 classrooms that could be compared on this variable. The differences were not consistent, however. In two classrooms small groups of three to five students characterized the "low" groups and large groups of six or more characterized the "high" group. In two other classes, however, small groups of two to five students characterized the "high" group.

The small number of behaviors and categories that could be examined in these comparisons and the low frequency of some of these behaviors should be kept in mind when drawing conclusions from this analysis. The fact that this restricted view of the classroom process did not reveal any relationships with this one outcome measure does not mean that such relationships do not exist. Future studies of this nature should collect a larger sample of process data on the children for whom outcome data are available. This is planned for the 1973-74 Follow Through classroom observations.

DISCUSSION AND CONCLUSIONS

The analyses presented in the results section are summarized here. The focus for this discussion is provided by the five questions originally posed in this study.

- Do differences in implementation occur when the curriculum is implemented in a wide variety of contexts? And what is the nature of these differences?

The observation data confirm what program directors and field staff have reported--differences in implementation do occur when the Cognitive Curriculum is implemented in a variety of settings. For the most part, however, these differences are not consistent across time or grade levels. Only the relatively high frequency of interaction with peers distinguished the New York first and third grade students from students in Trinidad, Greeley, and Florida during both data collection periods. The relatively low frequency with which object materials were used in the first grade in Trinidad differentiated them from the other first grades during each data collection period and the relatively high frequency of child-adult/child-material interactions differentiated the Trinidad third grade from other third grades during both collection periods.

Additional distinguishing characteristics of each center were peculiar to specific grade levels and to specific data collection periods. The nature of these differences, however, suggests several inferences even though they are restricted to a particular grade level and a particular observation period.

First, Greeley first grade students, observed during the fall data collection period, can be distinguished from the other first grade students by the relatively low frequency of individual attention, large groups, and object materials and by the relatively high frequency of child-adult interaction, child-material interactions, and teacher-structured activities. These differences suggest that Greeley first graders are characterized by high relative occurrences of small group, teacher-directed activities in which teacher statements are directed to the group as a whole rather than to individual children.

New York and Florida first grade students look similar to each other and are distinguished from both Trinidad and Greeley by the relatively high frequency of object materials and large groups. Florida is further differentiated from the other three centers by relatively high frequency of individual attention and small groups and New York is further distinguished from the other centers by the relatively high occurrence of child-child/child-material interactions. These distinguishing characteristics suggest that Florida students spend a portion of their day in small groups during which they receive individual attention from adults. They also spend some time in large group activities. The characteristics descriptive of New York present only a piecemeal picture. The children in first grade classes in this center are often involved in interactions with both peers and materials and are also often in large groups.

The differences among the first grades in these four centers do not hold true for the third grades. The third grade comparisons indicate that the Trinidad third grade can be distinguished from other third grades by the relatively low frequency of written materials, child-selected activities and the relatively high frequency of teacher-structured activities, and child-adult/child-material interactions. These differences suggest that the Trinidad third grade classes look similar to the Greeley first grade classes. The Trinidad classes are characterized by the relatively high occurrence of teacher-structured groups in which the children are attending either to the teacher or to materials being presented.

The third grade classes in Greeley differ from third grades in the other centers by the relatively high frequency of child-selected activities. New York third grade students, like the first grade students, are differentiated from students in the other centers by the relatively high frequency of child-child interactions that involve materials.

Florida and New York first grade classes observed in the spring can be distinguished from the Trinidad and Greeley students by the relatively high frequency of child-autonomy and large groups. New York students also interacted more frequently with peers than students in other centers. The picture presented for New York first grades is one in which children are involved with each other in activities of their choice. Materials and adults are often involved in these interactions.

Trinidad first grade students can be distinguished from other first grade students by the relatively high frequency of reading activities, small groups, child-material interactions, child-adult/child-material interactions and by the relatively low frequency of object materials and child-autonomy. These differences suggest that the first grade students in this center are usually in small groups which are structured by adults; often the focus of these groups was on children reading or responding to the adult.

Florida third grade students observed during the spring data collection period differed from Trinidad and New York third graders by the relatively high frequency of child-autonomy. This suggests that children in Florida had more input into their daily schedule than the children in New York and Trinidad. The relatively high frequency of adults giving instructions or directions to the entire class characterized Florida and New York third grades. These differences suggest that Florida students are frequently involved in activities of their choice but also spend some time in large group, teacher-directed activity. New York students were distinguished from other students by the high frequency of interactions with their peers.

For each center there are some aspects of the curriculum which are implemented to a greater degree than in other centers, whether it is the high occurrence of individual attention or the high occurrence of object or concrete materials. Most of these distinguishing variables, however, are a function of both grade level and time.

- How do ratings by curriculum assistants and field consultants relate to classroom observation assessments?

The relationship between classroom ratings by curriculum assistants and field consultants and classroom observation information is not consistent across classrooms. Fall ratings of the third grade classes made by the curriculum assistants were consistent with the information provided by the observations. The differences between the well-implemented classes and the least well-implemented classes were clearly shown in the observation data. The classes rated as highest in terms of implementation had more occurrence of child-selected activities and small groups while the classes rated as lowest in implementation had more occurrence of teacher-directed activities and large groups. This relationship between the curriculum assistants' ratings in the fall and the observation data did not hold true for the first grade classes. Two of the classes rated as well-implemented did not appear to be well-implemented according to the classroom observations and two of the classes rated as the least well-implemented appeared to be well-implemented.

Spring ratings of the first grade classes in New York and Florida indicated that the curriculum was being implemented equally well in each classroom. Differences among the classes in New York according to the classroom observations were slight. The observation data showed a number of differences among the classes in Florida, however. There was a direct relationship between the curriculum assistants' ratings of the Greeley third grade classes and the classroom observations but only a slight relationship between the classroom ratings of the third grade classes in New York and Florida and the classroom observations.

The relationship between classroom ratings made by the field consultants in the spring and the observations made in the classrooms also varied as a function of the center and grade level.

These discrepancies between the ratings made by field consultants and classroom observations seem to indicate that variables other than those assessed by the observation instrument were used as criteria in selecting the well-implemented classes and the least well-implemented classes.

. How well is the Cognitive Curriculum being implemented?

Because of its close supervision by curriculum specialists, the TDC serves as the "model" cognitive classroom. Thus, comparisons among the TDC and classes at each site provide a partial answer to the question. The answer is only partial because the TDC differs from most field sites in physical arrangement and in the mixing of grade levels that occurs at the TDC. The results of the comparisons suggest that certain aspects of the curriculum are being successfully implemented in all classrooms, other aspects are not being implemented, and still other aspects are successfully implemented in some classrooms but not in others.

The behavior of the teachers in the field, both in terms of the amount of questioning, controlling, listening, and explaining they did and in terms of the frequency with which they interacted with their students on a one-to-one basis or as a member of a group, is very similar to the behavior of the teachers in the TDC. On the other hand, group size and frequency of reading activities consistently differentiated many of the field classes from the TDC. Compared to the TDC, there was a relatively high frequency of reading activities in the field classes, a relatively high frequency of large groups in the first grade field classes, and a relatively high frequency of small groups in the third grade field classes. Daily routine, interaction type, and the type of behavior occurring when children interact with their peers differentiated at least one-third of the field classes from the "model" classroom. Daily routine and interaction type did not differ consistently from the TDC, but the nature of child-child interactions did. Children in the TDC more often used materials when they were interacting with their peers and were less frequently passively watching other children. To the extent that the ACI reflects aspects of the Cognitive Curriculum, the observations indicate that the curriculum as it exists in the TDC is not being totally implemented in the field.

These comparisons, however, cannot provide a complete answer to the question of successful implementation because of the developmental nature of the curriculum and of the observation instrument. The ACI by no means represents a definitive statement of what the Cognitive Curriculum should look like. It does represent an initial attempt to tap those classroom processes thought to be important in the implementation of the Cognitive Curriculum. There are classroom activities and interactions important in the implementation of the curriculum, such as representation, which were not reflected in the first edition of the ACI. The development of the Cognitive Curriculum is also an ongoing process and as new aspects of cognitive development are explored and incorporated into the curriculum, the criteria for defining a well-implemented classroom change.

- What is the relation of classroom interactions to outcome measures?

Because of the small number of children in each classroom who received the Stanford-Binet and the small number of observations per pupil, the observed and expected frequencies of the ACI items restricted the number of categories that could be included in the comparisons of outcome measure and classroom behavior. Three of the ACI categories (6, 9, and 12) and the interaction type were used in these comparisons.

When the observation data of children with high Stanford-Binet scores were compared with the observational data of children with low Stanford-Binet scores in the same classroom, no differences were seen in three of the four variables examined. The children with Stanford-Binet scores higher than the class mean and the children with scores below the mean used the same type of materials, engaged in similar behavior during child-child interactions, and interacted in similar frequencies with adults, peers, and materials. The size of the groups that children were in did differentiate the high scoring students from the low scoring students in four of the 18 classes. These differences were not consistent, however. In two classrooms small groups of three to five characterized children with low S-B scores, whereas in the other two classrooms small groups were characteristic of children with high S-B scores. These limited comparisons, then, found little or no relationship between an outcome measure and four of the process variables assessed.

. Is interaction analysis a viable method for obtaining curriculum implementation information?

Interaction analysis is a viable method for obtaining curriculum implementation information if two requirements are met. First, the coding system must reflect process variables that are directly related to the implementation of a particular curriculum and secondly, the frequencies with which the desired behaviors are expected to occur in a well-implemented classroom must be known.

Depending on the data analysis and the number of variables being assessed, interaction analysis systems can provide several indicators of implementation. It is possible that a teaching team may be implementing the curriculum in certain areas but not in others. For example, the comparisons of the field classes with the TDC showed that adults in the field were implementing the particular aspect of the Cognitive Curriculum that advocates the use of individual attention by adults. In the area of material usage, however, the field classrooms were not implementing the curriculum in the same way that it was being implemented in the TDC. The children in the field classes were involved in reading activities more often than the children in the "model" classroom. Both the TDC-field class comparisons and the comparisons between the well-implemented classes and least well-implemented classes in each center indicated that classroom observation coding systems can differentiate classes functioning on different levels of implementation.

Conclusion

Classroom observation is a valuable tool for providing information about teacher and child behaviors and various aspects of curriculum implementation. In this study the observation instrument focused specifically on teacher and child behaviors, interactions, and activities that were relevant to the Cognitive Curriculum. The results showed that curriculum-specific category systems can differentiate among classrooms and among centers. The potential for classroom observations seems great: They are useful to curriculum consultants in identifying what areas of a curriculum a teacher might need assistance in, and they are useful to teachers in knowing where their strengths and weaknesses lie. Most importantly, the analysis of classroom interaction is vital to curriculum developers and evaluators for understanding the processes that contribute to the successful implementation of the curriculum.

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APPENDIX A

ANALYSIS OF CLASSROOM INTERACTION:

A MANUAL FOR OBSERVERS

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ANALYSIS OF CLASSROOM INTERACTION (ACI)

The Analysis of Classroom Interaction has been developed by the High/Scope Educational Research Foundation to record the classroom interactions occurring in its Follow Through centers. The ACI is an outgrowth of the PROSE (Personal Record of School Experience) which was developed by Medley and his colleagues at the Educational Testing Service (Medley, Quirk, Schluck and Ames, 1971) and which had been used in several research projects conducted by the High/Scope Foundation (Deloria, Dick, Hanvey and Love, 1972; Sheriff, 1971). This experience in using the PROSE has made it possible to adapt the most desirable and relevant features of that procedure and to modify the behavior categories in such a way that they would more adequately capture the classroom interactions thought to be important for a well-implemented Cognitively Oriented Curriculum. The categories found in this first edition of the ACI by no means represent the definitive statement of what the Cognitively Oriented Curriculum should look like. As data are collected and as the results are examined by curriculum specialists, refinements and modifications will undoubtedly occur.

Figure 1 shows the form to be used for recording the observed behavior. On the right side of the score form, the subject identification can be coded so that each child receives a unique I.D. number. Information concerning teacher, observer, center, etc., appearing on the right side of the ACI sheet, should be completely filled out by the observer. In the "remarks" section, on the upper right-hand side of the sheet, the observer can write a physical description of the student. This physical description should contain a description of the items of clothing which uniquely identify the child within the classroom, so that the observer can readily locate the child when it is his turn to be observed, whether or not the observer knows his name. When the observer takes a break, he should record the length of the break and the activity time or segment of the daily routine that is going on while he is taking the break. This will be recorded on a separate sheet of paper.

ACI contains 13 major categories. Each category contains several subcategories which define the type of event in which the child or adult is engaged. With the exception of Category 7 and 11, only one subcategory can be marked within each category for any event. If none of the subcategories apply to the event observed, the observer leaves that category completely blank for that event. For example, if a child were playing with a classmate, Categories 1, 2, 3, 4 and 5 would be left blank and only Categories 6 through 13 would be marked.

The major unit of observation for each child is called a "cycle." One cycle consists of five events, each signaled by a timer at 25-second intervals. The time span covered by a complete cycle, then, is 125 seconds. Within a cycle, each event is coded in a separate column on each of the 13 categories. The first event in cycle A, for example, would be coded in column (1) for Categories 1 through 13; the second event would be coded in column (2) for the first 11 categories since Categories 12 and 13 are coded only every first and fifth event, and so on.

Each student is observed for 125 seconds and his behavior is recorded in cycle A. When this process is completed for all students to be observed, which will be the entire class, the first student is observed a second time, and his behavior is coded in cycle B, and so on. Each child will be observed for four cycles. Additional cycles per child will be coded if time permits.

Which events are to be recorded is determined by a portable tape recorder or a specially designed batterypowered timer which emits audible signals at fixed intervals into an earphone worn in the observer's ear. The timer or tape cassette should be adjusted to produce two signals. One signal will be produced at approximately 25-second intervals, the other signal will precede the 25-second signal by three seconds and serve as a cue to the observer to watch the target child for three seconds. The 22-second interval is required because the observer must code up to 15 categories to describe each event, and still have time to observe the child again before the next signal. Thus, the three-second interval identifies the events which are to be recorded. At the end of the three-second interval, the observer should immediately code what he has observed. The observer should attempt to complete the recording within 10 to 12 seconds so that he can observe as much of the child's behavior, and of whatever may be going on, during the 22-second interval. This is necessary in order for the observer to better understand and code the child's behavior during the interval signaled by the timer. But only the events actually occurring during the three-second interval should be coded.

Definitions of the Categories

Child-Adult Contacts

Categories 1, 2, 3, 4 and 5 of ACI are coded only when the child is paying attention to an adult during the three-second interval; otherwise they are left blank.

Category 1 identifies the adult, Category 2 indicates the activity of the child, Category 3 indicates the type of control the adult used, Category 4 describes the activity of the adult in the event being described, and Category 5 describes whether the adult is interacting with the child alone or as part of a group. To repeat: if the child is not paying attention to an adult during the three-second interval, Categories 1 through 5 are all left blank.

1.	TCHR	[1]
	AA	[2]
	OAA	[3]
	OBS	[4]
	OTH	[5]
	TAA	[6]

Category 1 indicates the type of adult to whom the child is attending during the three-second interval.

1. TCHR (teacher): The teacher who is in charge of the class.

1. AA (adult aide): The adult aide, assistant teacher, or paraprofessional.

1. OAA (other adult): The second aide or second teacher in the classroom.

1. TAA (teenage aide): The teenage aide, or an older child who is acting in such a role.

1. OBS (observer): The observer who is coding the child's behavior.

1. OTH (other): An adult different from the teachers, adult aides, teenage aide, or observer such as a parent, school principal, custodian, or some other adult visitor to the classroom.

NOTE: When OBS or OTH is coded, Categories 2, 3, 4 and 5 are not coded.

2. INIT [1]
LSWT [2]

Category 2 indicates the activity of the child within a child-adult interaction.

2. INIT (initiating): The child is attempting to obtain the attention of the adult.

Example: The child is tugging on the skirt of the teacher aide.

Example: The child is calling out the name of the teacher.

Example: The child is asking the observer a question.

2. LSWT (listening or watching): The child is paying attention to an adult, but the adult is paying attention to another child or group of children of which the target child is not a member.

Example: The child is watching the teacher who is talking to a group of children who are in another part of the room.

Example: The child is listening to a teacher scold another child for running around the room.

NOTE: When LSWT is coded, Category 5 is not coded.

3. NEGCT [1]
POSCT [2]
PROCT [3]

Category 3 indicates the type of control (verbal or physical), which the adult is exhibiting during the three-second interval.

3. NEGCT (negative control): The adult is indicating to the child (verbally or physically) that he is doing or has done something wrong.

Example: "Jimmy, I'm disappointed in you."

Example: "Don't put that away until I tell you to."

Example: "Johnny, what did I tell you about running around the room?"

3. POSCT (positive control): The adult is praising or showing approval (verbally or nonverbally) for something the child said or did.

   Example: "Good."

   Example: "That's right, Ann."

3. PROCT (procedural control): The adult is giving procedural or movement directions to a child.

   Example: "Mark, please go turn the lights on."

   Example: "Move your chair down."

   Example: The teacher, talking about the next day's zoo trip, says, "Come to the room in the morning, pick a partner, tell me who he or she is, and then go out and get on the bus."

   NOTE: When Category 3 is coded, Category 4 will not be coded.

4.

LSWT	[1]
QDVG	[2]
QCVG	[3]
SHTL	[4]
DO4	[5]
NONTC	[6]

Category 4 indicates the nature of the teaching activity.

4. LSWT (listening or watching): The teacher is attending to the target child, either listening to him or watching him.

   Example: The child is asking a question, and the adult appears to be listening to the child.

   Example: The adult is watching the child measure and record the height of her plant.

   Example: A child is telling the teacher aide about her birthday party.

4. QDVG (divergent question): The teacher is asking the target child a question that is of such a nature that: (a) there is no answer; (b) there is no right answer; or (c) there is more than one answer.

Example: "If we did not have clocks, how could we figure out what time it is?"

Example: "If you could plan your own vacation, where would you go?"

Example: "How would you get from Michigan to Colorado?"

4. QCVG (convergent question): The teacher is asking the target child a question that is of such a nature that: (a) there is only one answer; or (b) the manner in which the teacher asked the question, i.e., tone of voice, suggests that she wants one specific answer.

   Example: "What is the capital of Michigan?"

   Example: "What is today's date?"

   Example: "Is that a picture of you or your sister?"

4. SHTL (show or tell): The teacher is showing or telling the target child something, usually in a directed teaching situation.

   Example: A parent is turning the pages of a book while reading aloud to the child.

   Example: The teacher is showing a filmstrip.

   Example: The aide is telling the class about different rocks they might see on their field trip.

4. DO4 (doing for): The adult is performing some activity for the child.

   Example: The adult is helping the child put on his coat.

   Example: The adult is taking dictation from the child.

   Example: The teacher is getting some drawing paper out of the cabinet for the child.

   NOTE: When Category 4 is coded, Category 3 will be blank.

4. NONTC (non-teaching activity): The teacher is performing some non-teaching activity while the target child is watching her.

Example: Another teacher comes to the door and motions to the classroom teacher.

Example: The teacher is placing napkins and cookies around the table.

5. STAR [1]
   PART [2]

Category 5 indicates whether the adult is paying attention to the child alone, or to a group containing the child.

5. STAR: The child is receiving more attention from the adult than any other child.

   Example: The aide is praising the child to the rest of the class.

   Example: The child is sitting in the teacher's lap while the teacher is reading a story to the class.

   Example: The teacher asks the child a question.

5. PART: The child is part of a group of children to whom the adult is paying attention, but the child is not the "star" of the group.

   Example: The child is part of a group that is listening to the teacher tell a story.

   Example: The child is part of a group that is being taught a new song by the adult aide.

   NOTE: When Category 5 is coded, LSWT in Category 2 is not coded.

   NOTE: If the target child is paying attention to both an adult and to another child, code the appropriate child-adult contact categories and the child-child contact categories.

Child-Child Contacts

Category 6 indicates that the target child is paying attention to another child, and by inferring from the materials being used or not being used, attempts to record the content of the interaction on an educational-noneducational basis.

6. EDFC [1]
NEDFC [2]
NTRL [3]
LSWT [4]

6. EDFC (educational focus): The target child and another child are using materials, that the teacher has placed in the room, in a constructive manner. Or, during evaluation time, a child is telling the class what he did.

Example: Two children are weighing different kinds of rocks and recording the weights in a book.

Example: A small group of children, including the target child, are looking at a map and deciding on the best route for their field trip.

Example: During evaluation time, a child is telling the class about the story he wrote.

6. NEDFC (noneducational focus): The target child and another child are engaged in clearly non-educational activities such as pushing, shoving, giggling, making faces at each other, etc.

Example: Two children are making faces at each other while the aide is reading a story.

Example: Two children are pushing each other around.

6. NTRL (neutral): The target child is interacting with another child but they are not using materials, they are not giggling, pushing, etc., and they are not telling what they did during evaluation time. The educational-noneducational content of the conversation cannot be determined because materials are not involved.

Example: Two children are talking to each other while the aide is explaining how to make a paper-mache animal.

Example: Four children are in the math area talking. They are not using any of the math materials, however.

Example: Two children are engaged in a discussion in the quiet area.

6. LSWT (listening and watching): The target child is paying attention to second child, but the second child is paying attention to a third child or an adult, and not the target child.

   Example: The target child is watching two children build a ship with blocks.

   Example: The child is listening to two children discuss the stories they are writing.

   NOTE: If the target child is paying attention to both a child and an adult, code the child-child contact categories and the appropriate child-adult categories.

Categories Used in Adult-Child, Child-Child and Child-Material Contacts

7. CNTC [1]
   VRB [2]

Category 7 indicates the type of communication within either the child-adult, child-child or child-material contact.

7. CNTC (physical contact): The child-adult and child-child interaction involves physical contact.

   Example: The adult has her arm around the target child.

   Example: The adult is leading the target child by the hand.

7. VRB (verbal): The child-adult, child-child or child-material interaction involves verbal behavior by the target child, another child or an adult.

   Example: The adult is talking to the child.

   Example: Two children are talking together.

8. MPICA [1]
MPICP [2]
MWRIT [3]
MREAD [4]
MOBJ [5]

Category 8 indicates the nature of the materials used.

8. MPICA (active picture material): The child-adult, child-child, or child-material contact involves the drawing or creation of picture material by the target child.

Example: Two children are painting at easels.

Example: A child is drawing a picture.

8. MPICP (passive picture material): The child-adult, child-child, or child-material contact involves the passive use of picture material by the target child.

Example: A child is looking at a picture in a book while the teacher reads the narrative.

Example: A child is looking at a map.

Example: Two children are looking at pictures drawn by other children in the class.

8. MWRIT (written material): During the child-adult, child-child, or child-material interaction the target child is writing.

Example: The child is writing a story.

Example: The child is writing about what she did in the morning.

8. MREAD (reading material): During the child-adult, child-child, or child-material interaction the target child is reading books and stories, etc.

Example: The child is reading a story to another child.

Example: The child is reading his plan to his group at the table.

Example: The child is reading directions on how to make a god's eye.

8. MOBJ (real object): The materials used in the child-adult, child-child, or child-material interaction are real objects or 3D replicas of real objects.

Example: The target child is holding his airplane and explaining to the teacher aide how he made it from wood scraps.

Example: A child is eating a cookie.

Example: Some students are spending their paper money in the class store.

9. PRET [1]
DRAPY [2]
SDRPY [3]
OTHAC [4]
RNTE [5]

Category 9 attempts to characterize a pupil's activity inferred either from the activity itself, the materials being used, or both.

9. PRET (pretending): The child is pretending that an object or nothing is something other than its real nature. No role-taking is present.

Example: The class is pretending they are farm animals.

Example: A boy is holding a large block of wood to his ear and is talking on this "telephone."

Example: A girl is pretending that a plate has a slice of cake and a scoop of ice-cream on it.

Example: Three children are building a ship with blocks.

9. DRAPY (dramatic play): A child is taking the role of another person. The child is role-playing by himself, he is not interacting with others.

Example: A child has built a plane with blocks and is flying it over the mountains.

Example: A child is a fireman and is putting out fires.

Example: The "mother" in the playroom seems to be unaware of the "children."

9. SDRPY (sociodramatic play): Dramatic play in cooperation with another role-taker. The interaction involves both action and language.

Example: Tim is the "father" and is telling his "wife" and "children" what they should do.

Example: Two children are manipulating puppets and are talking to each other through the identities of the puppets.

Example: Four children are play-acting a story they have just read.

9. OTHAC (other activities): The child is engaged in an activity other than pretending, dramatic or sociodramatic play, or routine work.

Example: Two children are writing a book.

Example: Each child is molding clay into something of his choice.

Example: A student is painting a picture.

9. RNTE (routine work): The child is engaged in a socially useful task, such as cleaning up the room after art period.

Example: The child is putting toys back into their proper box.

Example: A child is passing out papers to the other children.

Example: Four children are wiping off the tables after snack time.

10. ONE [1]
TWO [2]
3-5 [3]
6+ [4]
ALL [5]

Category 10 indicates the number of pupils in the target child's area.

10. ONE; The target child is the only pupil in the group.

10. TWO: The group contains the target child and one other pupil.

10. 3-5: The group contains the target child and from two to four other pupils.

10. 6-10: The group contains the target child and from 5-9 other pupils,

10. 10-ALL: The group contains the target child and more than 10 other students.

11. LONE [1]
ADULT [2]

Category 11 indicates whether or not the target child is interacting with anyone or anything and, if he is interacting with a person, whether or not the area he is in (category 12) contained an adult.

11. LONE: The target child is not interacting with materials, other children or adults. The child might be looking out the window, wandering around the room, looking for something to do, etc. Only Categories 9, 10, 12, and 13 are coded when LONE is coded.

Example: The target child is staring out the window while the teacher is explaining what to do next.

Example: The target child is looking around the room absent-mindedly.

Example: The target child is holding pencil but appears to be daydreaming.

11. ADULT: The group, of which the target child is a member, or the area that the target child is in, contains an adult.

Example: Two children are working on a project and an adult is working with them.

Example: An adult is reading a story to the whole class.

Categories 12 and 13 are not coded for every event. They are coded only during the first and fifth event in a cycle.

12.	ARCR	[1]
	QUIET	[2]
	INSEQ	[3]
	OTH	[4]
	SCIMA	[5]
	CRC	[6]
	LANG	[7]
	BLKSHP	[8]
	SOCSND	[9]

Category 12 indicates the location the target child is in during the three second interval. The observer will either be provided with a diagram of each classroom showing the various learning centers or areas in the room, or the areas will be marked by the teachers. This will help the observer record which area the target child is in.

12. ARCR (arts and crafts): Any materials which are used in visual arts and crafts. This would include such items as crayons, paints, molding clay, drawing paper, paste, beads, construction paper, etc.

12. QUIET (quiet area activities): Includes books, writing materials, quiet games, puzzles, and other items designed to be used in quiet play.

12. INSEQ (instructional equipment): Includes record players, tape recorders, filmstrips or other mechanical devices which could be categorized as audio-visual equipment; devices especially designed as a teacher aide or learning aide such as a blackboard, map, globe, teaching machine, etc.

12. OTH (other area): That area of a particular room that is not included in the above locations.

12. SCIMA (science and math area): Magnifying glasses, magnets and other equipment especially designed for science lessons. Also includes geo boards, number games, number bingo, and other math related items.

12. CRC (circle area): Large group area when class gathers as a whole, i.e., not an interest center.

12. LANG (language arts or communications area): Includes language or reading games, lessons, etc.

12. BLKSHP (block and shop area): Includes blocks and wheel toys and shop or carpentry tools such as hammer, wood, nails, etc.

12. SOCSND (sociodramatic and sand play): Area where children are role playing or using sand and sand table equipment. Role-playing area would include such things as pots and pans, dolls, doll clothes, puppets, rubber animals, empty food containers for store play, etc. Sand table equipment would include water, grain, sand, measuring devices, etc.

13.

WRK	[1]
SNK	[2]
RFML	[3]
GRP	[4]
STRY	[5]
PLN	[6]
EVLT	[7]
CLUP	[8]

Category 13 refers to the part or segment of the daily routine that is taking place during the three second interval.

13. WRK (work time): Child-initiated activities in learning centers; working individually or in small groups on individual projects such as reading books, working worksheets, typing, making cookies, building something from wood, etc.

13. SNK (snack time): Snack and/or juice during the class day.

13. RFML (relatively formal time): "Lecture-style" instruction in arithmetic, science, reading, health, etc., that is directed to the entire class. Instructional materials used by the whole class and directions and announcements that are directed to the entire class are also included in this category.

13. GRP (group time): "Lecture-style" instruction in an academic area with small groups. Children are formally divided into two or more cohesive groups led by the teacher and/or aide.

13. STRY (story time): Entire class is listening to a story, playing games, listening to music, singing, watching movies or educational T.V., listening to a guest speaker, etc.

13. PLN (planning time): Children are in groups choosing their activity for the day, or the teacher is doing the planning for the students, i.e., telling the students which learning centers to go to.

13. EVLT (evaluation time): Children are showing and/or telling the teacher and class what he or she did during worktime.

13. CLUP (clean-up time): Time set aside for the entire class to clean the room.

NOTE: All classes might not have the above eight segments or parts to their daily routine or schedule. Code those that are appropriate.

NOTE: If the class is divided into groups which rotate code GRP even though one or two groups may be engaged in activities of their own choice.

NOTE: If the class is divided into groups which do not rotate and some children are engaged in free-choice activities code WRK for those students.

NOTE: If there is one group in the class and the majority of the class is engaged in free-choice activities code GRP for the group members and WRK for those in free-choice activities.

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Deloria, D.J., Dick, C.L., Hanvey, R.W., and Love, J.M. A classroom observation study of four cognitively oriented Head Start sites. Final Report to OCD. Ypsilanti, Michigan: High/Scope Foundation, 1972.

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Figure 1: ACI Coding Sheet

	CYCLE A					CYCLE B					CYCLE C				
1. TCHR	[1]	[1]	[1]	[1]	[1]	[1]	[1]	[1]	[1]	[1]	[1]	[1]	[1]	[1]	[1]
AA	[2]	[2]	[2]	[2]	[2]	[2]	[2]	[2]	[2]	[2]	[2]	[2]	[2]	[2]	[2]
OAA	[3]	[3]	[3]	[3]	[3]	[3]	[3]	[3]	[3]	[3]	[3]	[3]	[3]	[3]	[3]
TAA	[4]	[4]	[4]	[4]	[4]	[4]	[4]	[4]	[4]	[4]	[4]	[4]	[4]	[4]	[4]
OBS	[5]	[5]	[5]	[5]	[5]	[5]	[5]	[5]	[5]	[5]	[5]	[5]	[5]	[5]	[5]
OTH	[6]	[6]	[6]	[6]	[6]	[6]	[6]	[6]	[6]	[6]	[6]	[6]	[6]	[6]	[6]
2. INIT	[1]	[1]	[1]	[1]	[1]	[1]	[1]	[1]	[1]	[1]	[1]	[1]	[1]	[1]	[1]
LSWT	[2]	[2]	[2]	[2]	[2]	[2]	[2]	[2]	[2]	[2]	[2]	[2]	[2]	[2]	[2]
3. NEGCT	[1]	[1]	[1]	[1]	[1]	[1]	[1]	[1]	[1]	[1]	[1]	[1]	[1]	[1]	[1]
POSCT	[2]	[2]	[2]	[2]	[2]	[2]	[2]	[2]	[2]	[2]	[2]	[2]	[2]	[2]	[2]
PROCT	[3]	[3]	[3]	[3]	[3]	[3]	[3]	[3]	[3]	[3]	[3]	[3]	[3]	[3]	[3]
4. LSWT	[1]	[1]	[1]	[1]	[1]	[1]	[1]	[1]	[1]	[1]	[1]	[1]	[1]	[1]	[1]
ODVG	[2]	[2]	[2]	[2]	[2]	[2]	[2]	[2]	[2]	[2]	[2]	[2]	[2]	[2]	[2]
SHTL	[3]	[3]	[3]	[3]	[3]	[3]	[3]	[3]	[3]	[3]	[3]	[3]	[3]	[3]	[3]
DO4	[4]	[4]	[4]	[4]	[4]	[4]	[4]	[4]	[4]	[4]	[4]	[4]	[4]	[4]	[4]
OCVG	[5]	[5]	[5]	[5]	[5]	[5]	[5]	[5]	[5]	[5]	[5]	[5]	[5]	[5]	[5]
NONTC	[6]	[6]	[6]	[6]	[6]	[6]	[6]	[6]	[6]	[6]	[6]	[6]	[6]	[6]	[6]
5. STAR	[1]	[1]	[1]	[1]	[1]	[1]	[1]	[1]	[1]	[1]	[1]	[1]	[1]	[1]	[1]
PART	[2]	[2]	[2]	[2]	[2]	[2]	[2]	[2]	[2]	[2]	[2]	[2]	[2]	[2]	[2]
6. EDFC	[1]	[1]	[1]	[1]	[1]	[1]	[1]	[1]	[1]	[1]	[1]	[1]	[1]	[1]	[1]
NEDFC	[2]	[2]	[2]	[2]	[2]	[2]	[2]	[2]	[2]	[2]	[2]	[2]	[2]	[2]	[2]
NTRL	[3]	[3]	[3]	[3]	[3]	[3]	[3]	[3]	[3]	[3]	[3]	[3]	[3]	[3]	[3]
LSWT	[4]	[4]	[4]	[4]	[4]	[4]	[4]	[4]	[4]	[4]	[4]	[4]	[4]	[4]	[4]
7. CNTC	[1]	[1]	[1]	[1]	[1]	[1]	[1]	[1]	[1]	[1]	[1]	[1]	[1]	[1]	[1]
VRB	[2]	[2]	[2]	[2]	[2]	[2]	[2]	[2]	[2]	[2]	[2]	[2]	[2]	[2]	[2]
8. MPICA	[1]	[1]	[1]	[1]	[1]	[1]	[1]	[1]	[1]	[1]	[1]	[1]	[1]	[1]	[1]
MPICP	[2]	[2]	[2]	[2]	[2]	[2]	[2]	[2]	[2]	[2]	[2]	[2]	[2]	[2]	[2]
MREAD	[3]	[3]	[3]	[3]	[3]	[3]	[3]	[3]	[3]	[3]	[3]	[3]	[3]	[3]	[3]
MWRIT	[4]	[4]	[4]	[4]	[4]	[4]	[4]	[4]	[4]	[4]	[4]	[4]	[4]	[4]	[4]
MOBJ	[5]	[5]	[5]	[5]	[5]	[5]	[5]	[5]	[5]	[5]	[5]	[5]	[5]	[5]	[5]
9. PRET	[1]	[1]	[1]	[1]	[1]	[1]	[1]	[1]	[1]	[1]	[1]	[1]	[1]	[1]	[1]
DRAPY	[2]	[2]	[2]	[2]	[2]	[2]	[2]	[2]	[2]	[2]	[2]	[2]	[2]	[2]	[2]
SDRDY	[3]	[3]	[3]	[3]	[3]	[3]	[3]	[3]	[3]	[3]	[3]	[3]	[3]	[3]	[3]
OTHAC	[4]	[4]	[4]	[4]	[4]	[4]	[4]	[4]	[4]	[4]	[4]	[4]	[4]	[4]	[4]
RNTE	[5]	[5]	[5]	[5]	[5]	[5]	[5]	[5]	[5]	[5]	[5]	[5]	[5]	[5]	[5]
10. ONE	[1]	[1]	[1]	[1]	[1]	[1]	[1]	[1]	[1]	[1]	[1]	[1]	[1]	[1]	[1]
TWO	[2]	[2]	[2]	[2]	[2]	[2]	[2]	[2]	[2]	[2]	[2]	[2]	[2]	[2]	[2]
3–5	[3]	[3]	[3]	[3]	[3]	[3]	[3]	[3]	[3]	[3]	[3]	[3]	[3]	[3]	[3]
6–10	[4]	[4]	[4]	[4]	[4]	[4]	[4]	[4]	[4]	[4]	[4]	[4]	[4]	[4]	[4]
10–ALL	[5]	[5]	[5]	[5]	[5]	[5]	[5]	[5]	[5]	[5]	[5]	[5]	[5]	[5]	[5]
11. LONE	[1]	[1]	[1]	[1]	[1]	[1]	[1]	[1]	[1]	[1]	[1]	[1]	[1]	[1]	[1]
ADULT	[2]	[2]	[2]	[2]	[2]	[2]	[2]	[2]	[2]	[2]	[2]	[2]	[2]	[2]	[2]
12. ARCR	[1]	ARCR			[1]	[1]	ARCR			[1]	[1]	ARCR			[1]
QUIET	[2]	QUIET			[2]	[2]	QUIET			[2]	[2]	QUIET			[2]
INSEQ	[3]	INSEQ			[3]	[3]	INSEQ			[3]	[3]	INSEQ			[3]
OTH	[4]	OTH			[4]	[4]	OTH			[4]	[4]	OTH			[4]
SCIMA	[5]	SCIMA			[5]	[5]	SCIMA			[5]	[5]	SCIMA			[5]
CRC	[6]	CRC			[6]	[6]	CRC			[6]	[6]	CRC			[6]
LANG	[7]	LANG			[7]	[7]	LANG			[7]	[7]	LANG			[7]
BLKSHP	[8]	BLKSHP			[8]	[8]	BLKSHP			[8]	[8]	BLKSHP			[8]
SOCSND	[9]	SOCSND			[9]	[9]	SOCSND			[9]	[9]	SOCSND			[9]
13. WRK	[1]	WRK			[1]	[1]	WRK			[1]	[1]	WRK			[1]
SNK	[2]	SNK			[2]	[2]	SNK			[2]	[2]	SNK			[2]
RFML	[3]	RFML			[3]	[3]	RFML			[3]	[3]	RFML			[3]
GRP	[4]	GRP			[4]	[4]	GRP			[4]	[4]	GRP			[4]
STRY	[5]	STRY			[5]	[5]	STRY			[5]	[5]	STRY			[5]
PLN	[6]	PLN			[6]	[6]	PLN			[6]	[6]	PLN			[6]
EVLT	[7]	EVLT			[7]	[7]	EVLT			[7]	[7]	EVLT			[7]
CLUP	[8]	CLUP			[8]	[8]	CLUP			[8]	[8]	CLUP			[8]

REMARKS:

TEACHER:

OBSERVER:

DATE OF OBSERVATION:

CENTER:

SEX:

GRADE:

SUBJECT IDENTIFICATION:

APPENDIX B

Appendix B: Reliability Tables

Table 1

Training Week Mean Pairwise Percent Agreement for each Item on the ACI

Category	Item	Percent Agreement
1	TCHR	94
	AA	-
	OAA	-
	TAA	-
	OBS	89
	OTH	-
2	INIT	69
	LSWT	58
3	NEGCT	25
	POSCT	08
	PROCT	78
4	LSWT	80
	QDVG	58
	SHTL	85
	DO4	37
	QCVG	63
5	STAR	85
	PART	76
6	EDFC	73
	NEDFC	72
	NTRL	38
	LSWT	81
7	CNTC	76
	VRB	91
	CNTC+VRB	61
8	MACT	87
	MPAS	91
9	MPIC	81
	MWRIT	74
	MOBJ	89
10	LOC	85
	NLOC	97
11	PRET	-
	DRAPY	17
	SDRDY	64
	OTHAC	98
	RNTE	30
12	ONE	59
	TWO	87
	3-5	88
	6+	70
	ALL	83
13	LONE	62
	ADULT	98
	LONE+ADULT	60
14	ARCR	78
	SHOP	79
	QUIET	96
	BLKS	71
	SANWA	-
	INSEQ	13
	SCI	76
	SOCPY	58
	TDSK	-
	OTH	94
15	WRK	91
	SNK	-
	RFML	-
	GRP	23
	STRY	75
	PLN	39
	EVLT	17
	CLUP	90

Table 2

Training Week Mean Pairwise Percent Agreement for Major Interaction Types

Interaction Type	Percent Agreement
Child-Adult	67
Child-Child	72
Child-Material	95
Child-Adult/Child-Child	69
Child-Adult/Child-Material	86
Child-Child/Child-Material	89
Child-Adult/Child-Child/ Child-Material	50
lone	00

Table 3

Percent Agreement between Project Coordinator and Observers for each Item on the ACI

Fall Data Collection Period

Category	Items	Observer 1 Percent Agreement	Observer 2 Percent Agreement	Observer 3 Percent Agreement
1	TCHR	95	90	89
	AA	66	91	1.00
	OAA	85	91	85
	TAA	-	00*	-
	OBS	90	77	95
	OTH	-	1.00*	00*
2	INIT	29	60	40
	LSWT	57	93	60
3	NEGCT	83	87	75
	POSCT	1.00*	1.00*	67*
	PROCT	58	94	1.00
4	LSWT	88	93	64
	QDVG	83	56	31
	SHTL	96	97	64
	DO4	75*	45	33*
	QCVG	91	10	1.00
5	STAR	1.00	94	1.00
	PART	70	98	76
6	EDFC	86	85	91
	NEDFC	80	60	91
	NTRL	90	00	05
	LSWT	96	49	96
7	CNTC	50	66	85
	VRB	82	90	61
	CNTC+VRB	93	88	69
8	MACT	77	99	75
	MPAS	95	97	99
9	MPIC	45	96	65
	MWRIT	89	87	86
	MOBJ	96	92	84

* frequency < 5

Table 3 (cont'd)

Category	Items	Observer 1 Percent Agreement	Observer 2 Percent Agreement	Observer 3 Percent Agreement
10	LOC	76	89	83
	NLOC	97	99	98
11	PRET	-	00*	-
	DRAPY	00*	-	-
	SDRDY	90	00	-
	OTHAC	99	97	99
	RNTE	93	40	-
12	ONE	75	66	55
	TWO	95	65	31
	3-5	95	98	93
	6+	98	95	88
	ALL	86	1.00	1.00
13	LONE	1.00	1.00*	00*
	ADULT	1.00	97	97
	LONE+ADULT	33	50*	00*
14	ARCR	97	97	90
	SHOP	-	-	00*
	QUIET	80	93	-
	BLKS	1.00*	-	-
	SANWA	-	-	-
	INSEQ	1.00*	-	-
	SCI	97	1.00	-
	SOCPY	1.00	-	-
	TDSK	-	-	-
	OTH	94	99	97
15	WRK	77	98	00
	SNK	90	1.00	-
	RFML	20	95	93
	GRP	80	1.00	76
	STRY	1.00	00*	-
	PLN	1.00*	91	1.00*
	EVLT	00*	-	-
	CLUP	94	1.00*	-

* frequency < 5

Table 4

Percent Agreement between Project Coordinator and Observer for Major Interaction Types

Interaction Type	Observer 1 Percent Agreement Fall	Observer 1 Percent Agreement Spring	Observer 2 Percent Agreement Fall	Observer 2 Percent Agreement Spring	Observer 3 Percent Agreement Fall	Observer 3 Percent Agreement Spring
child-adult	88	85	87	71	86	57
child-child	90	97	1.00	77	83	80
child-material	99	93	95	95	95	98
child-adult/ child-child	71	1.00	87	63	50	66*
child-adult/ child-material	98	94	86	97	79	94
child-child child-material	95	91	99	96	95	95
child-adult/ child-child/ child-material	78	72	42	73	69	80
lone	63	--	60	83	--	50*

* frequency $<$ 5

Table 5

Percent Agreement between Two East Coast Observers for each Item on the ACI

Fall Data Collection Period

Category	Item	Percent Agreement
1	TCHR	96
	AA	93
	OAA	96
	TAA	-
	OBS	91
	OTH	-
2	INIT	1.00*
	LSWT	63
3	NEGCT	50
	POSCT	1.00*
	PROCT	78
4	LSWT	92
	QDVG	80
	SHTL	93
	DO4	1.00*
	QCVG	90
5	STAR	96
	PART	86
6	EDFC	93
	NEDFC	83
	NTRL	92
	LSWT	86
7	CNTC	75
	VRB	92
	CNTC+VRB	95
8	MACT	87
	MPAS	97
9	MPIC	88
	MWRIT	75
	MOBJ	96
10	LOC	91
	NLOC	99
11	PRET	-
	DRAPY	-
	SDRDY	1.00
	OTHA	1.00
	RNTE	1.00
12	ONE	72
	TWO	93
	3-5	95
	6+	79
	ALL	86
13	LONE	50*
	ADULT	99
	L+ADULT	1.00*
14	ARCR	50*
	SHOP	-
	QUIET	1.00*
	BLKS	-
	SANDWA	-
	INSEQ	1.00*
	SCI	83
	SOCPY	-
	TDSK	-
	OTH	90
15	WRK	97
	SNK	1.00
	RFML	1.00
	GRP	1.00*
	STRY	92
	PLN	1.00
	EVLT	1.00*
	CLUP	85

* frequency $<$ 5

Table 6

Percent Agreement between Two East Coast Observers for Major Interaction Types

Interaction type	Fall	Spring
Child-Adult	64	89
Child-Child	78	1.00
Child-Material	98	96
Child-Adult Child-Child	60	57
Child-Adult Child-Material	92	99
Child-Child Child-Material	88	99
Child-Adult Child-Child Child-Material	98	1.00
Lone	-	-

Table 7

Percent Agreement between Project Coordinator and Observers for each Item on the ACI

Spring Data Collection Period

Category	Items	Observer 1 Percent Agreement	Observer 2 Percent Agreement	Observer 3 Percent Agreement
1	TCHR	94	98	88
	AA	88	86	83
	OAA	1.00	89	94
	TAA	85	1.00*	70
	OBS	78	92	97
	OTH	-	94	33*
2	INIT	1.00	77	76
	LSWT	94	1.00	68
3	NEGCT	00*	00*	75*
	POSCT	-	1.00*	1.00*
	PROCT	44	66	1.00
4	LSWT	93	81	66
	QDVG	00*	36	83
	SHTL	67	88	96
	DO4	75*	80	50*
	QCVG	63	85	76
5	STAR	1.00	91	96
	PART	80	96	91
6	EDFC	97	94	93
	NEDFC	89	66*	50*
	NTRL	30	80	60
	LSWT	73	73	78
7	CNTC	91	1.00*	50
	VRB	92	99	86
	CNTC+VRB	75	96	29
8	MPICA	94	78	75
	MPICP	67	96	73
	MREAD	1.00	95	85
	MWRIT	96	95	95
	MOBJ	97	94	97

* frequency < 5

Table 7 (cont'd)

Category	Items	Observer 1 Percent Agreement	Observer 2 Percent Agreement	Observer 3 Percent Agreement
9	PRET	11	-	1.00*
	DRAPY	-	-	00*
	SDRDY	48	00	1.00
	OTHAC	99	98	98
	RNTE	60	34	58
10	ONE	97	97	98
	TWO	86	91	73
	3-5	94	99	88
	6-10	76	94	68
	11-ALL	97	98	82
11	LONE	1.00*	50*	00*
	ADULT	99	99	97
	L+ADULT	67	82	00*
12	ARCR	79	98	94
	QUIET	92	95	93
	INSEQ	1.00	73	83
	OTH	76	85	92
	SCIMA	92	98	89
	CRC	1.00	91	79
	LANG	1.00	89	86
	BLKSHP	-	-	1.00*
	SOCSND	57	-	66*
13	WRK	94	97	70
	SNK	60	-	66*
	RFML	70	83	1.00
	GRP	00*	99	53
	STRY	30	90	-
	PLN	1.00*	1.00	00*
	EVLT	67	66*	75
	CLUP	50*	66	77

* frequency $<$ 5

Table 8

Percent Agreement between Two East Coast Observers for each Item on the ACI

Spring Data Collection Period

Category	Item	Percent Agreement
1	TCHR	1.00
	AA	95
	OAA	94
	TAA	67
	OBS	96
	OTH	00*
2	INIT	92
	LSWT	91
3	NEGCT	1.00
	POSCT	51*
	PROCT	71
4	LSWT	88
	QDVG	67
	SHTL	83
	DO4	86
	QCVG	94
5	STAR	96
	PART	89
6	EDFC	97
	NEDFC	1.00*
	NTRL	91
	LSWT	96
7	CNTC	56
	VRB	88
	CNTC+VRB	61
8	MPICA	1.00
	MPICP	1.00
	MREAD	97
	MWRIT	98
	MOBJ	99
9	PRET	-
	DRAPY	-
	SDRDY	-
	OTHA	99
	RNTE	95
10	ONE	93
	TWO	89
	3-5	98
	6-10	97
	11+ALL	98
11	LONE	86
	ADULT	99
	L+ADULT	67*
12	ARCR	1.00
	QUIET	1.00
	INSEQ	1.00
	OTH	96
	SCIMA	88
	CRC	91
	LANG	1.00
	BLKSHP	1.00*
	SOCSND	-
13	WRK	98
	SNK	83
	RFML	57
	GRP	95
	STRY	-
	PLN	88
	EVLT	1.00*
	CLUP	88

* frequency < 5

Table 9

Percent Agreement between Project Coordinator and Observers for Combined Items of the ACI

Category	Item	Observer 1 Percent Agreement Fall	Spring	Observer 2 Percent Agreement Fall	Spring	Observer 3 Percent Agreement Fall	Spring
1	AA OAA	81		92	1.00		82
2	TAA OBS OTH	90		78	93		93
3	NEGCT POSCT PROCT	80		1.00	85		94
4	QDVG QCVG	89		86	71		81
12	6+ All			96			99
10	6-10 11-All	75			98		

APPENDIX C

ORGANIZATION OF APPENDIX C

The analysis indicates that certain categories, items and interaction types are more likely to distinguish classrooms and grade levels than others. Rather than discussing all significant differences, the items and interaction types that consistently differentiated classrooms were conceptually combined for the purpose of presentation and discussion. These conceptual "global variables" are labeled "autonomy", "teacher-directiveness", "group size", "material type" and "interaction type". The categories and items of the ACI that constitute the descriptors of these global variables are shown in Figure 2. The results of the two major kinds of analysis (across-classroom comparisons within grades and across-center comparisons within grades) will be discussed with respect to these five variables. Additional variables such as "individual attention", will be mentioned only if they differentiate a particular class or center from all other classrooms or centers. More detailed information about the difference on each item between each pair of classes would be useful to teachers and curriculum assistants but would unnecessarily burden the reader. The specific information on additional variables is made available to curriculum assistants and consultants. This report, however, is concerned with the more consistant trends and global variables that differentiate classes and centers from each other.

Each category included in the analysis is discussed in the fall-spring comparisons, the TDC-field class comparisons, and the Follow Through/non-Follow Through comparisons since the focus of these comparisons are more specific. That is, all aspects of teacher and child changes, as provided by the coding system, are examined along with all possible similarities and differences between the TDC and field classes and between classrooms using the Cognitive Curriculum and classrooms not using this curriculum.

The results are presented in five separate sections; 1) fall data analysis, 2) spring data analysis, 3) analysis of fall-spring comparisons, 4) analysis of TDC and field class comparisons and 5) analysis of Follow Through/non-Follow Through comparisons. Under the fall and spring analysis both within-site comparisons and across-center comparisons are examined.

Figure 2

Autonomy

- Category 15; children are involved in activities of their choice (WRK)

Interaction Type

- Interactions involving children; child-adult/child-child, child-child, child-child/child-material
- Interactions involving adults; child-adult/child-child, child-adult, child-adult/child-material
- Interactions involving materials; child-material, child-adult/child-material, child-child/child-material

Teacher Directiveness

- Category 15; children are in small group teacher-structured activities (GRP)
- Category 15; adults are giving instructions, directions or presentations to the entire class (RFML)
- Category 4; adults are controlling, asking convergent questions (QCVG), and showing and telling (SHTL)

Material Type

- Category 9; description of the materials used.

Group Size

- Category 12; the number of children in the child's group

The summaries of these findings can be found in the Results and the Discussion and Conclusion sections of this report.

The fall classroom observation data are reported first. Within each center and grade level classrooms are tested for differences on the five global variables. After comparisons are made within eachgrade level the curriculum assistants' ratings of the classrooms are examined. Across-site comparisons are made next, keeping grade level constant. The ACI items and categories and interaction types used in these comparisons are those that are reliable in all the centers. In some cases a particular category, interaction type or item is reliable for the New York and Florida comparisons but not for the comparisons involving Trinidad and Greeley. When this occurs, these categories are not reported in the across-site comparisons although they are shown in the accompanying figures.

The spring data are reported next, with the findings presented in the same sequence as the fall results. In addition to ratings using the Implementation Metrix, global ratings of curriculum implementation were obtained from High/Scope curriculum specialists who are responsible for the implementation of the Cognitive Curriculum at each center having the High/Scope Foundation as their sponsor model.

As mentioned above, the results of the comparisons between the fall and spring data for every classroom are reported by each ACI category as are the results of the comparisons between the TDC and the field classes. Category 1 was not included in the TDC-field class comparisons because of the noncomparable number of adults in the TDC. Finally, the comparisons made between the non-Follow Through classrooms in Greeley and between the Follow Through and non-Follow Through classrooms are reported. Category 1 and Category 15 were not included in these comparisons because the number of adults in these classrooms and the structure of the school day were not comparable.

Unreliable Items

All items or combined items within a category are listed at the top of each column on the figures pertaining to the fall, spring and Follow Through/non-Follow Through analysis. Those interaction types or items with low reliability are identified by a single asterisk. The Goodman's simultaneous confidence intervals are not shown for these items. Only those items that have an acceptable reliability and sufficient frequency to permit analyzing are shown in the figures. In some instances the observed frequencies are less than three. In these cases the confidence intervals cannot be calculated and no line or representation of the interval can be shown on the figures.

Since the across-time comparisons and the TDC-field class comparisons are presented in the figures by individual items rather than by category those items that are unreliable cannot be so easily identified. The confidence intervals for both unreliable items and for items with frequencies less than three are not presented. Unreliable items and low frequency items can be distinguished in the following manner; if the confidence intervals for a specific item are not shown for any of the classes in a particular center the reader can assume that the item is not reliable in that center; if the confidence interval is shown for one or more but not all of the classes in a center the reader can assume that the item is reliable and occurred infrequently in some classes. For example, if the Category 6 item, LSWT, is unreliable in Trinidad and Greeley the confidence intervals for this item will not be drawn for the classes in these centers. If this behavior was observed less than three times in classes 2 and 3 in Trinidad the confidence intervals would not be drawn for these classes but would be drawn for classes 1 and 4 in this center and for the Greeley classes. The unreliable items and the low frequency items can be distinguished in a similar manner for the across-center comparisons. Since reliability was calculated by observer, Trinidad and Greeley have the same item and interaction type reliability. The New York and Florida item and interaction type reliability are identical.

Interpretation of Figures

The title of each figure identifies the data collection period, the variable being tested for independence, the grade level and the center where the data were collected. The number assigned to each category in the fall was used to identify those same variables in the spring. The size of group variable which was Category 12 in the fall collection period became Category 10 after revisions were made for the spring. It is consistently referred to as Category 12 throughout the report for clarity of presentation. In the same manner, the category describing the daily routine is always referred to as Category 15, and the category describing the kind of materials used is Category 9.

These figures were derived from contingency tables which reported the Goodman's simultaneous confidence intervals for multinomial proportions, the Goodman-Kruskal taus and lambdas, the Pearson chi square value or the partitioned chi square value and the degrees of freedom for those statistics. The observed frequency and the lower and upper bound of the Goodman's confidence interval are graphically represented in the figures. The true frequency of a behavior falls within this confidence interval with a probability of .95. For example, suppose the lower and upper bounds of the item STAR in class 1 were .50 and .65. This means that it can be concluded with a 95% degree of confidence that when children in this class were in contact with adults, the adults interacted with them on an individual basis 50 to 65 percent of the time. If the confidence intervals for a particular item or interaction type do not overlap the variables used in the comparisons differ significantly from each other, if the intervals do overlap there is no significant difference between the variables.

The taus, lambdas, chi square values and the degrees of freedom of all pairwise comparisons were calculated. Due to the large number of tables and figures produced in the analysis, however, the decision was made to include only the figures in this report. This method of presentation more clearly shows whether classes or sites are similar or different with respect to a particular variable. The direction of these differences is also readily discernable from these figures.[1]

For the within-center comparisons the numbers 1 through 4 at the bottom of each column on the figures refer to the particular classes at each center. For the across-center comparisons these numbers refer to centers. Number 1 refers to Trinidad, 2 refers to Greeley, 3 refers to Florida and 4 refers to New York. Number 1 is Follow Through in the figures presenting the comparisons between Follow Through and non-Follow Through classes.

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[1] The chi square values and the taus and lambdas for the comparisons presented in this study can be obtained by writing to the Research Department of the High/Scope Foundation.

Fall Data Analysis

Fall Comparisons of the First Grade Classes in Trinidad

Two of the three first grade classrooms in Trinidad looked very similar with respect to autonomy, teacher-directiveness, group size and materials used (see Figures 3-9).

Class 2 children compared to children in classes 1 and 3 used picture materials more frequently, spent a smaller portion of the school day in child-selected activities and a larger portion in teacher-directed activities and were often involved in child-child/child-material interactions. Class 2 children further differed from class 1 children by being more often in small groups (3-5) and less often in large groups (6+), and by spending more time in child-adult interactions.

Although none of the 3 classrooms was implementing the curriculum at the highest level, the curriculum assistants indicated that class 2 was the best and class 3 the least well implemented. When comparing the highest-rated classroom with the lowest-rated class the following differences were apparent: children in the better-rated class used more picture materials, were more often involved in teacher-structured activities and less often involved in self-selected activities and interacted less with both children and materials.

FIGURE 3

GOODMAN'S CONFIDENCE INTERVALS OF CATEGORY 1 ITEMS FOR FIRST GRADE CLASSES

TRINIDAD, FALL 1972

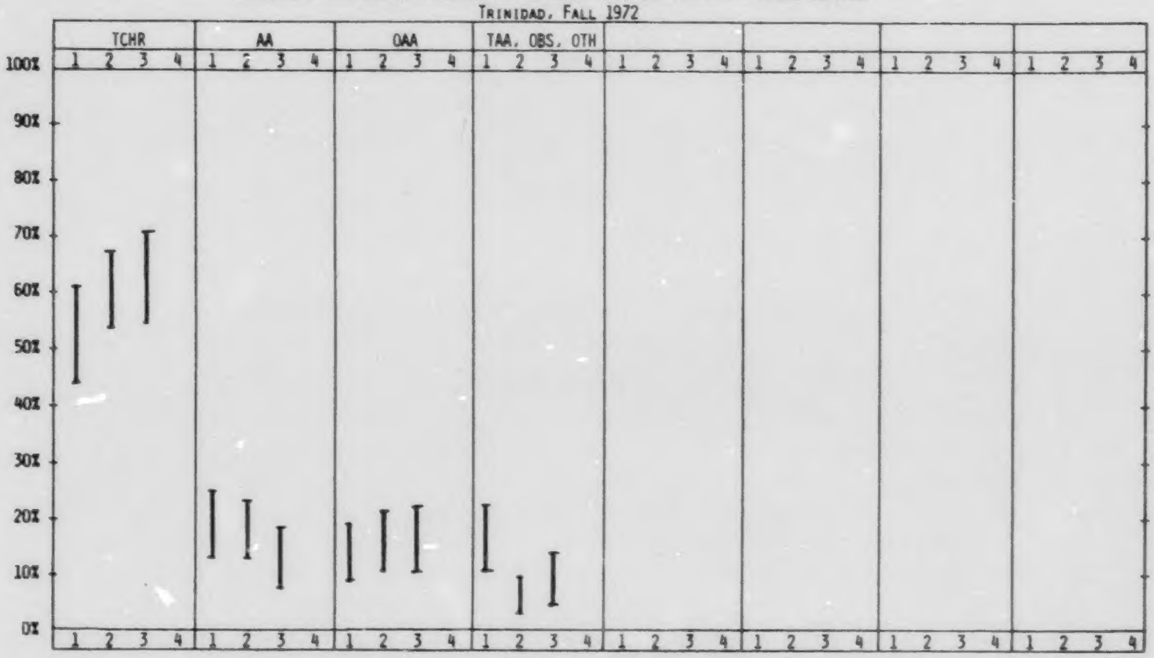


FIGURE 4

GOODMAN'S CONFIDENCE INTERVALS OF CATEGORY 4 ITEMS FOR FIRST GRADE CLASSES

TRINIDAD, FALL 1972

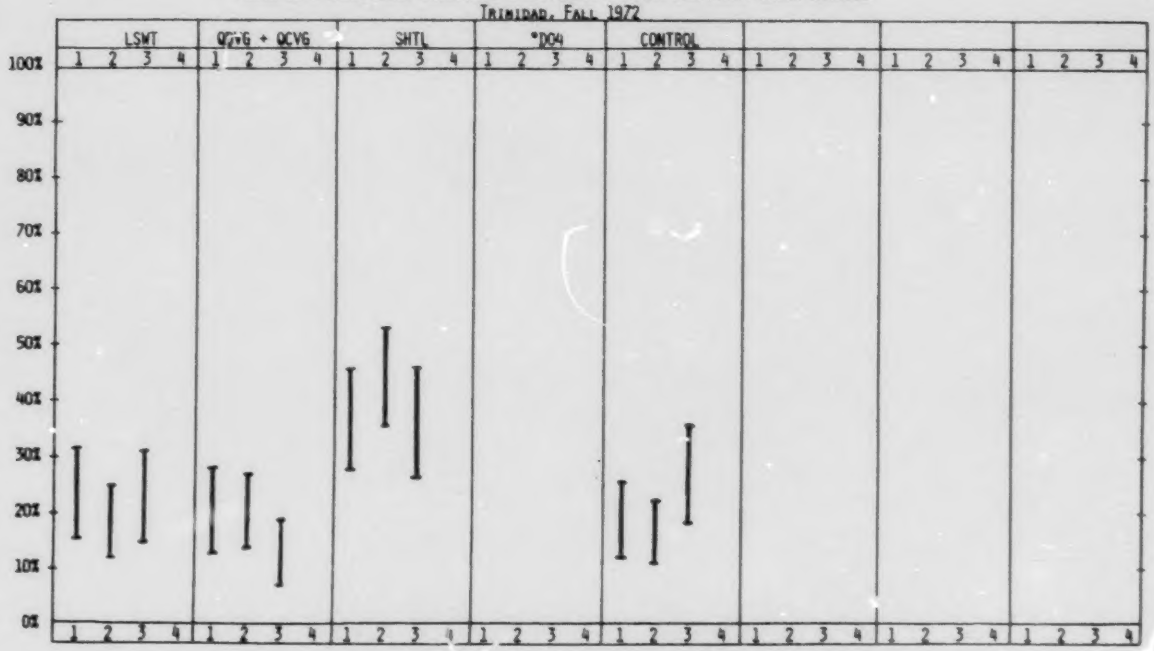


Figure 5
Goodman's Confidence Intervals of Category 5 Items for First Grade Classes
Trinidad, Fall 1972

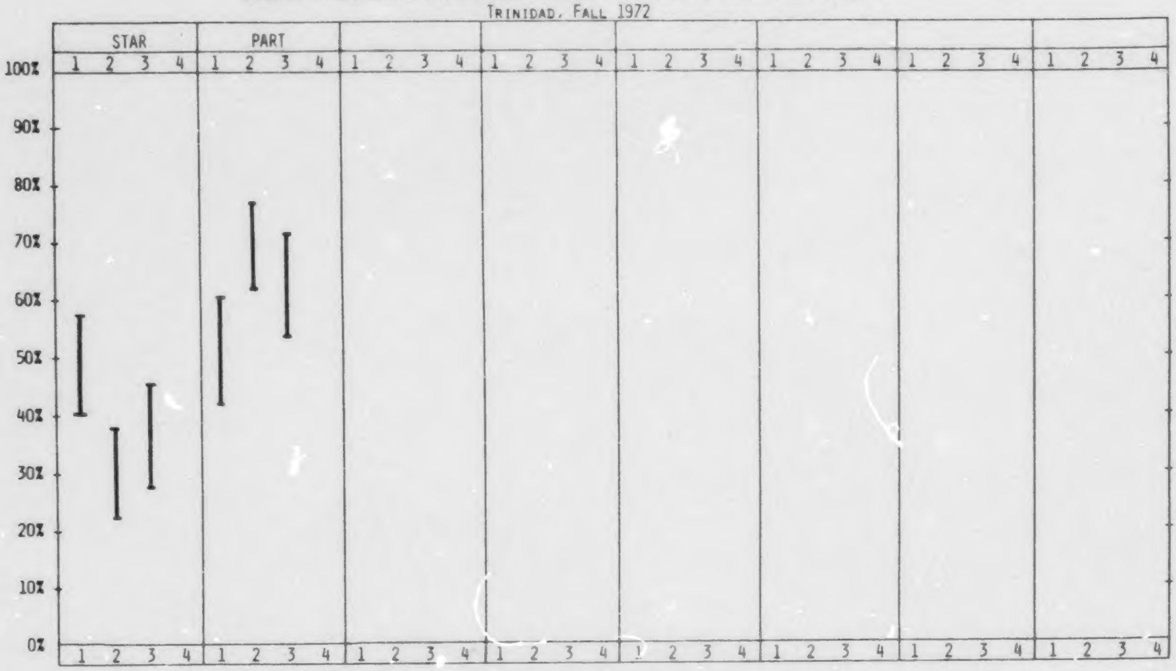


Figure 6
Goodman's Confidence Intervals of Category 9 Items for First Grade Classes
Trinidad, Fall 1972

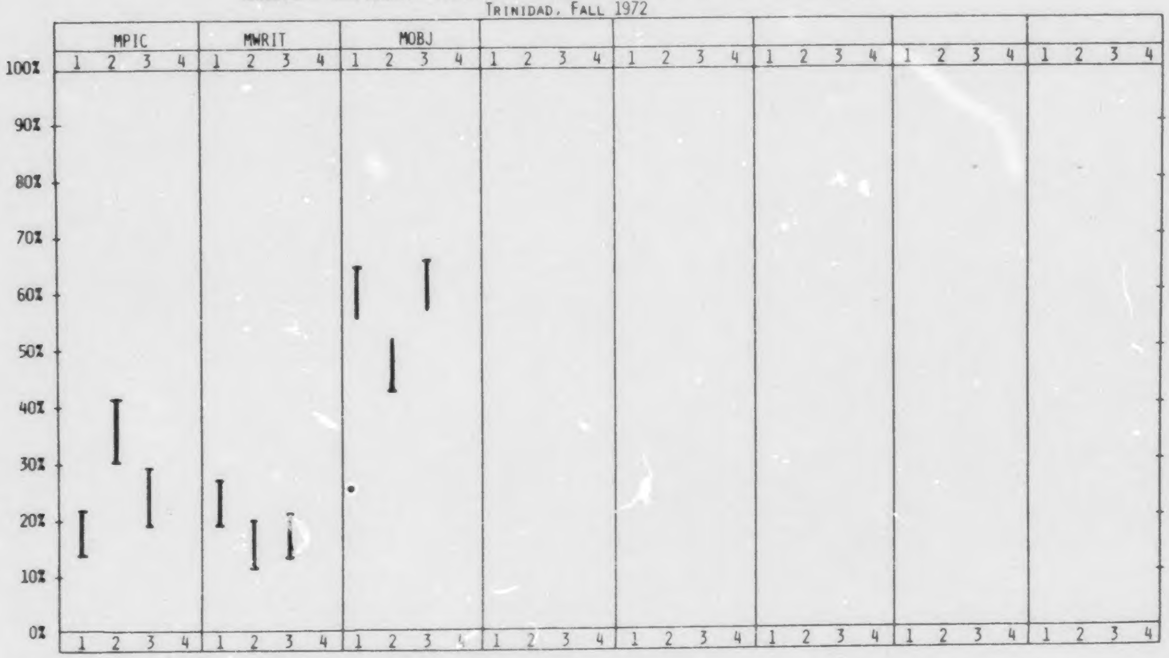


Figure 7

Goodman's Confidence Intervals of Category 12 Items for First Grade Classes
Trinidad, Fall 1972

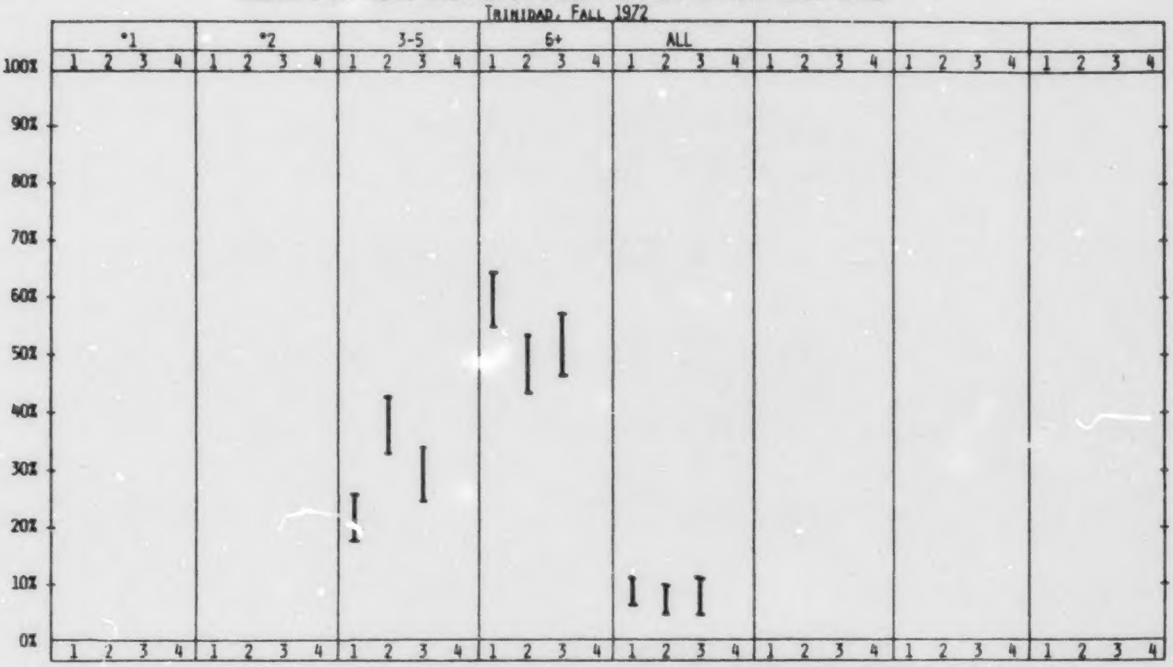


Figure 8

Goodman's Confidence Intervals of Category 15 Items for First Grade Classes
Trinidad, Fall 1972

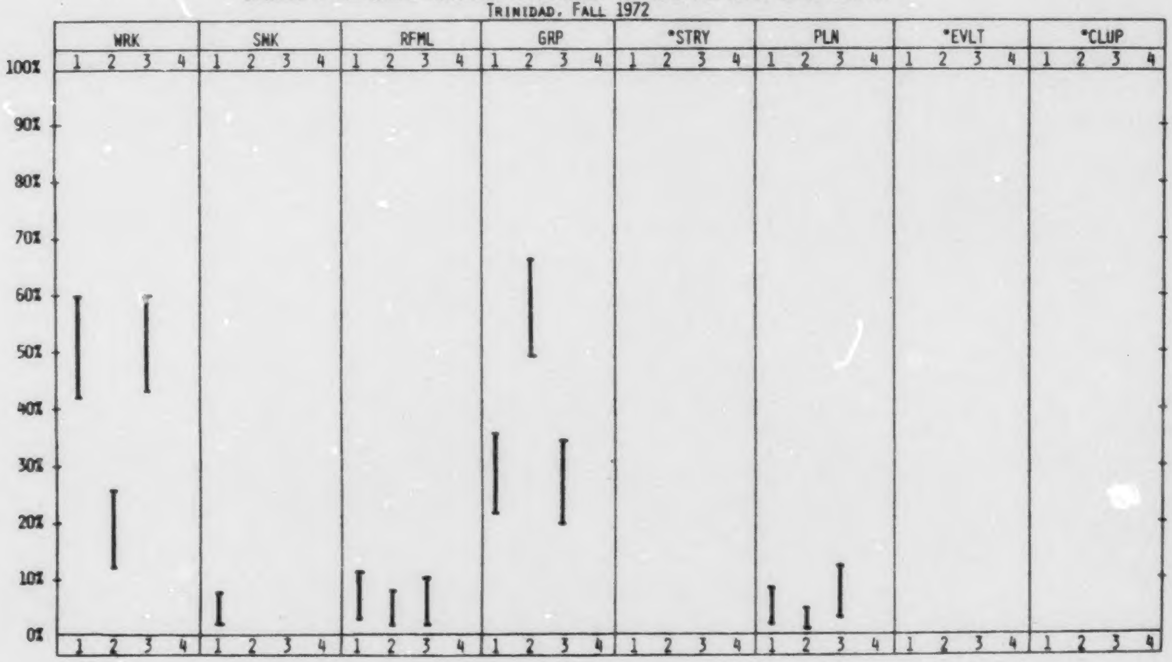
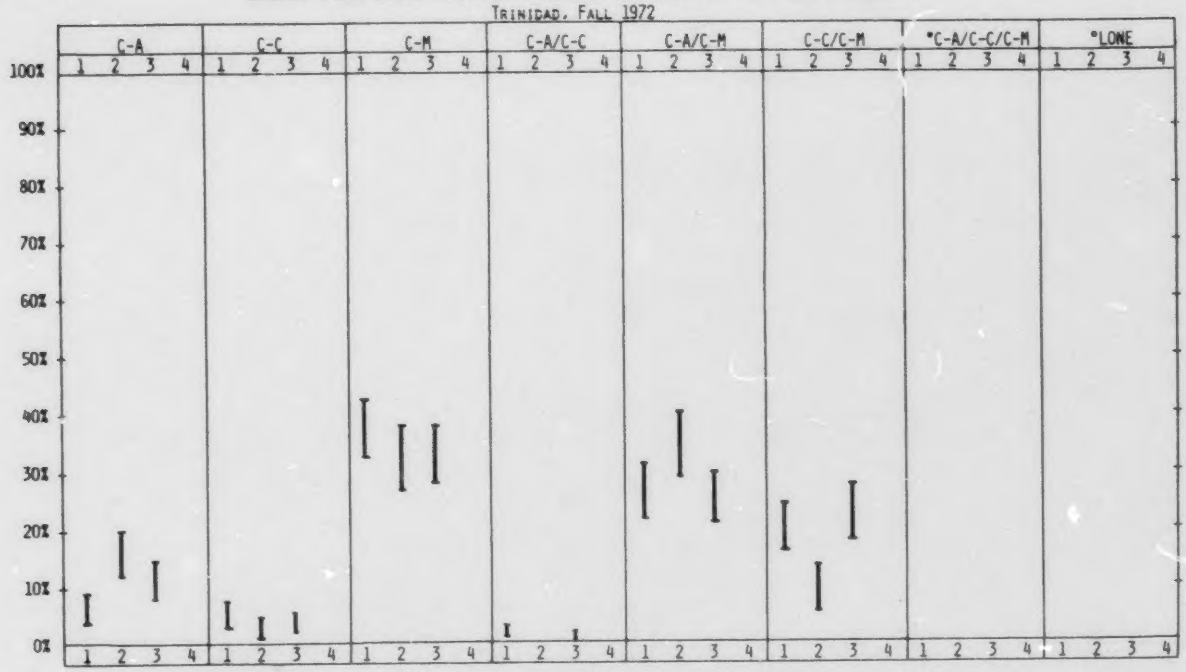


FIGURE 9

GOODMAN'S CONFIDENCE INTERVALS OF INTERACTION TYPES FOR FIRST GRADE CLASSES

TRINIDAD, FALL 1972



Fall Comparisons of the Third Grade Classes in Trinidad

The third grade Trinidad classrooms showed a progression in terms of child autonomy with class 2 children being the most autonomous and class 1 children being the least autonomous. Classes 3 and 4 were between the two extremes with class 3 being more autonomous than class 4 (see Figures 10-16).

Class 1 children, compared to children in the other classes, were more often involved in large groups, teacher-structured activities, were more often in groups containing more than five students or the entire class and were less often in small groups of three to five students and received less individual attention from adults than children in other classes. Child-material interactions occurred less often in this class than in class 3. Class 1 adults did more showing and telling than adults in classes 2 and 4.

Class 2 children, on the other hand, were more often involved in self-selected activities and used written materials less often than children in the other classes. Compared to the children in the two most structured classes (1 and 4) children in class 2 were more often involved in child-adult interactions, were less often in groups containing more than six students and were asked more questions by the adults. They also used more object materials than class 4 students.

Class 3 children compared to class 2 children spent more time in teacher-structured activities, less time in self-selected activities and used more written materials and fewer object materials. Compared to class 4 children, they were more often in small groups of three to five students and were less often in groups containing more than six students.

Although none of the classes was implementing the curriculum well, the curriculum assistants rated classes 2 and 3 as implementing it better than class 4. Classes 2 and 3 were similar with respect to group size and interaction type and differed from class 4 with respect to the autonomy of the children, the amount of teacher direction and group size. Children in the higher-rated classroom were more often involved in activities of their choice whereas children in the lower-rated class were more often in groups containing more than 6 students and more often involved in teacher-directed activities.

Figure 10

Goodman's Confidence Intervals of Category 1 Items for Third Grade Classes

Trinidad, Fall 1972

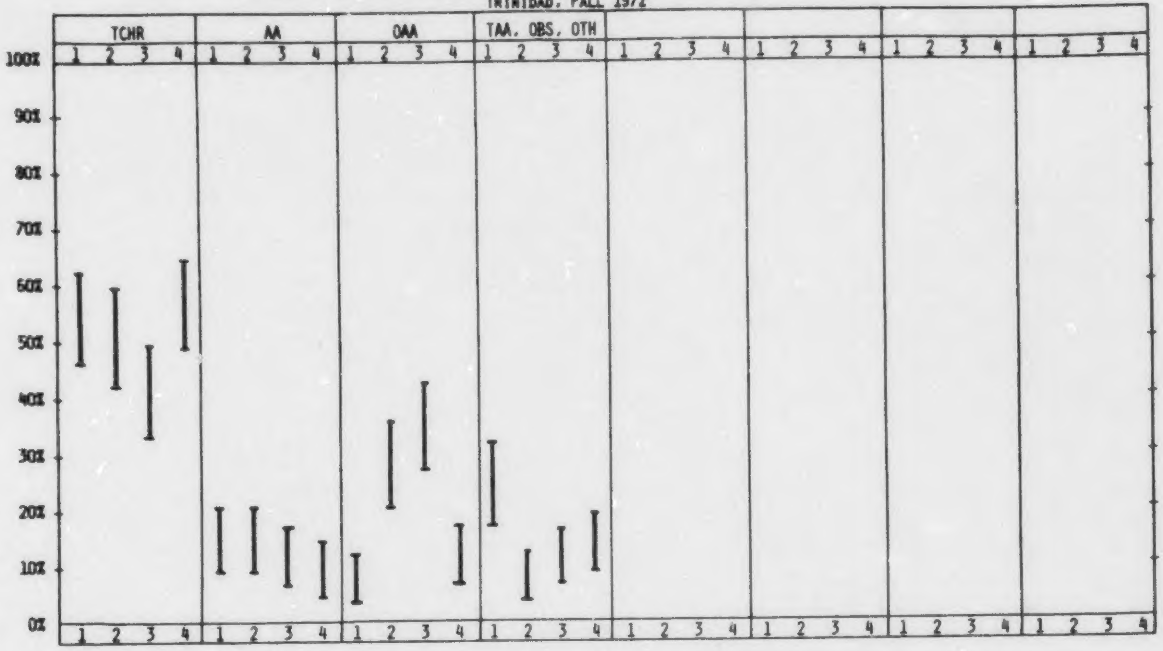


Figure 11

Goodman's Confidence Intervals of Category 4 Items for Third Grade Classes

Trinidad, Fall 1972

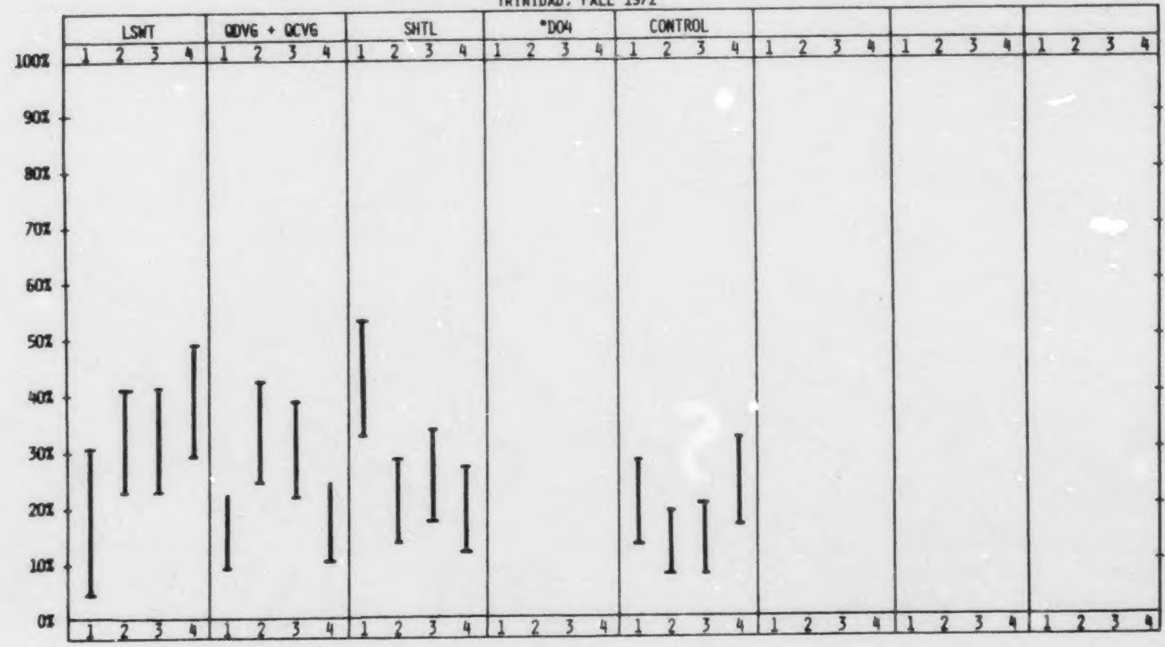


FIGURE 12

GOODMAN'S CONFIDENCE INTERVALS OF CATEGORY 5 ITEMS FOR THIRD GRADE CLASSES

TRINIDAD, FALL 1972

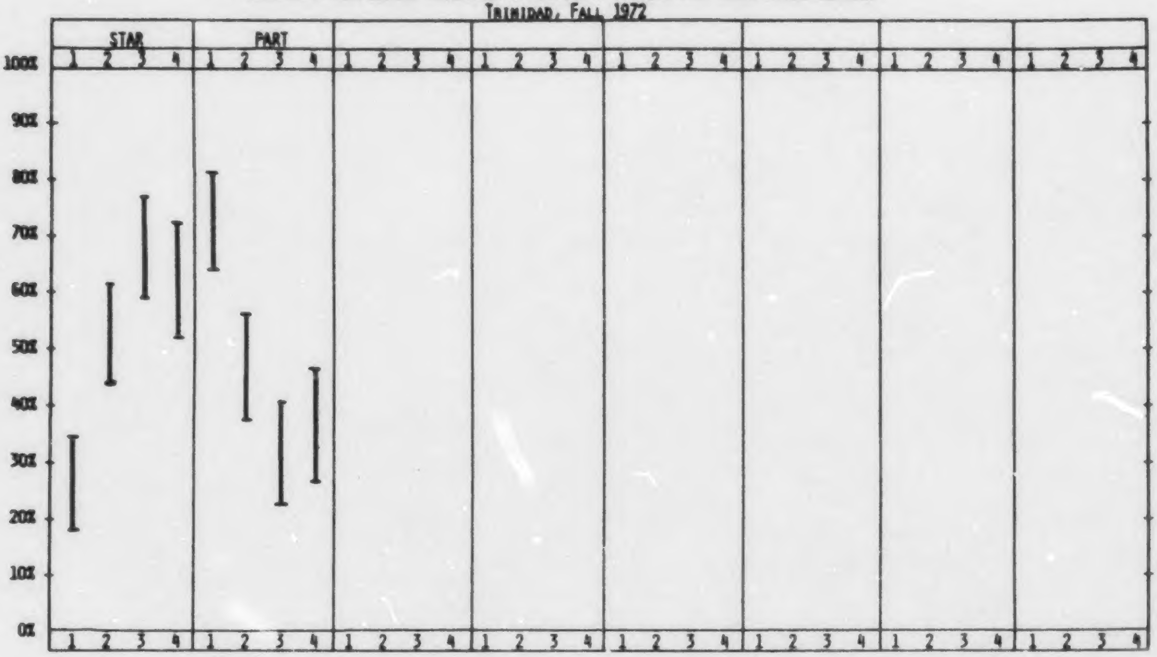


FIGURE 13

GOODMAN'S CONFIDENCE INTERVALS OF CATEGORY 9 ITEMS FOR THIRD GRADE CLASSES

TRINIDAD, FALL 1972

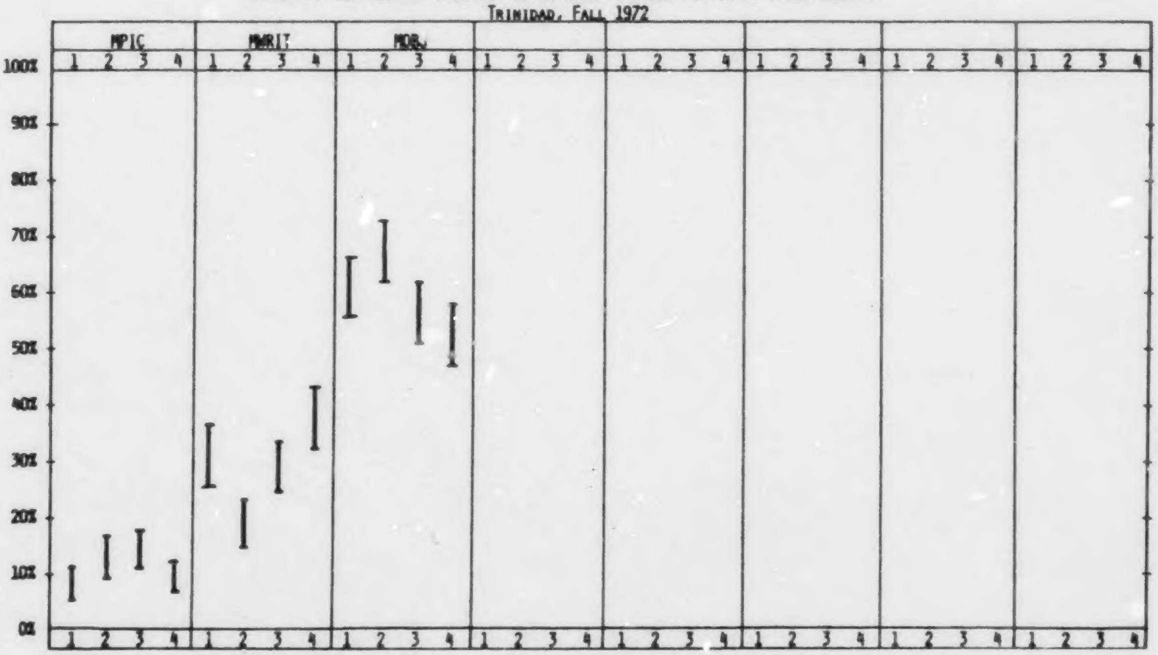


Figure 14
Goodman's Confidence Intervals of Category 12 Items for Third Grade Classes
Trinidad, Fall 1972

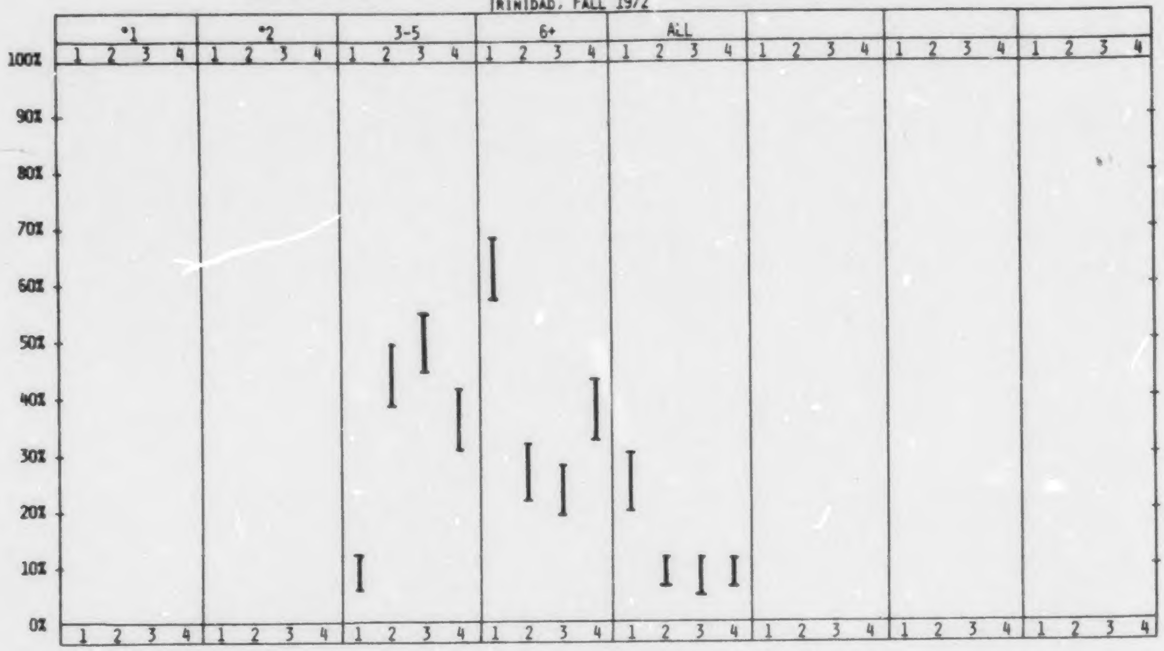


Figure 15
Goodman's Confidence Intervals of Category 15 Items for Third Grade Classes
Trinidad, Fall 1972

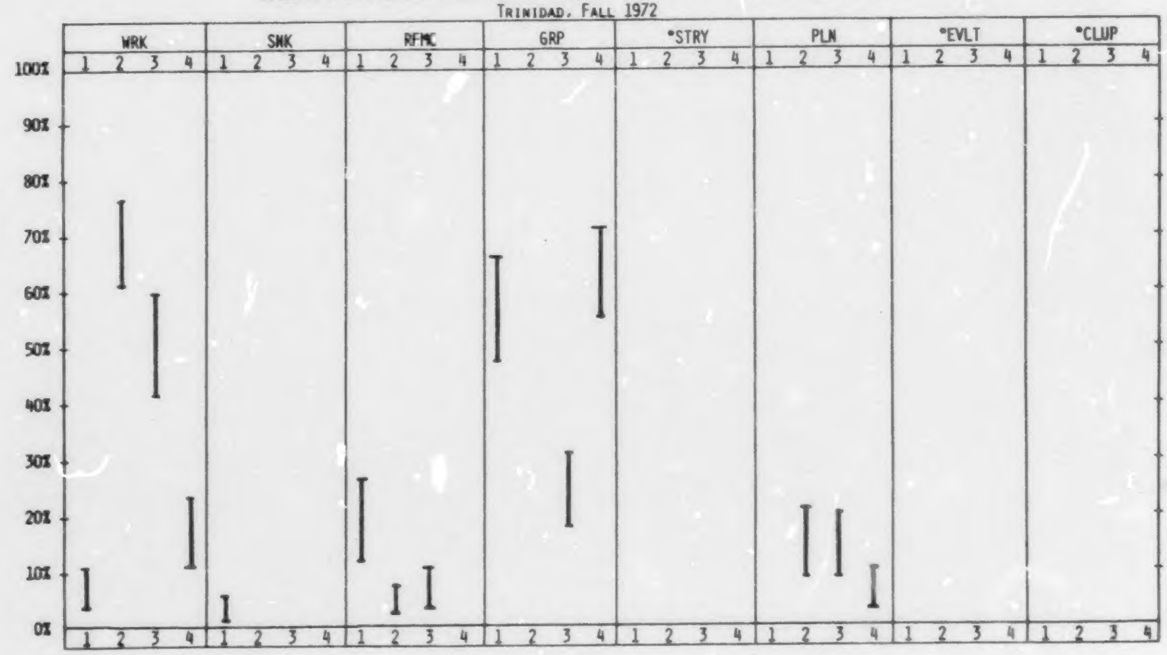
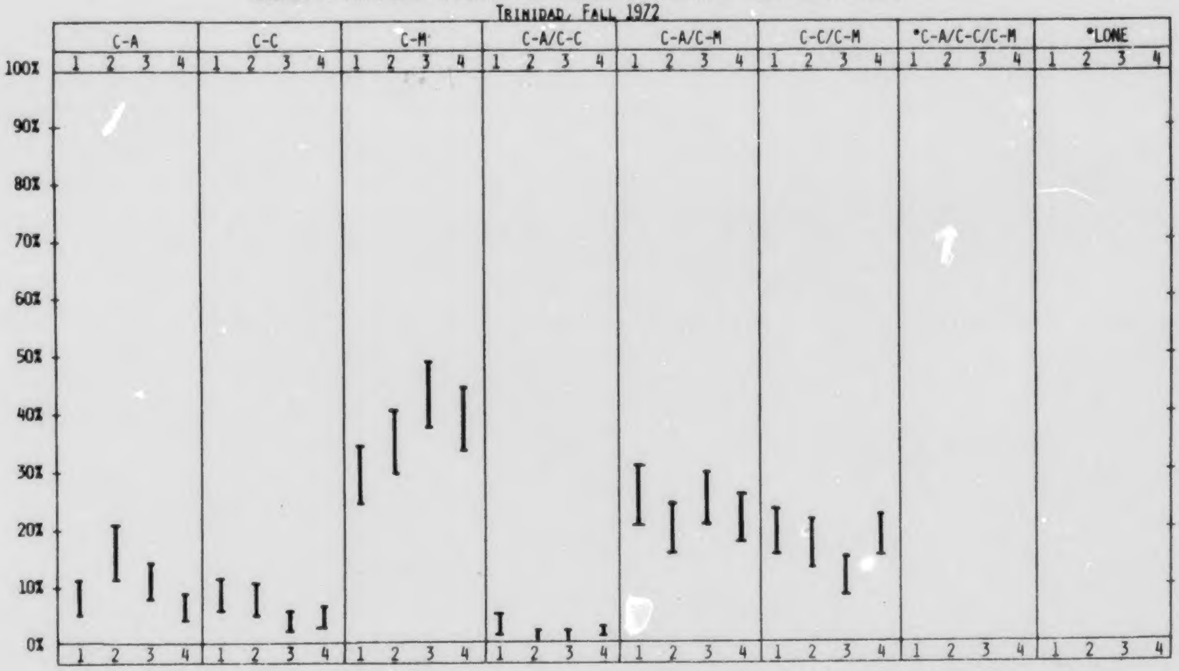


Figure 16

Goodman's Confidence Intervals of Interaction Types for Third Grade Classes

Trinidad, Fall 1972



Fall Comparisons of the First Grade Classes in Greeley

These three classes differed from each other in the kind of materials used, the group size, the amount of time spent in teacher-directed and child-selected activities and in the interaction types (see Figures 17-24).

Class 3 children used more picture materials and spent more of their school day in self-selected activities and less of it in teacher-structured activities. They also were less often in groups of more than five students than class 2 students.

Classes 1 and 2 were similar in the proportion of the day spent in teacher-directed and child-selected activities but differed in the materials used, the group size and the interaction type. Class 1 students used more written materials and were less often in small groups of three to five students than students in the other classes. Class 2 students were less often in groups containing the entire class and less often involved in child-adult and child-material interactions than other students. They used more object materials than class 1 students and interacted more often with both children and materials than class 3 students. The adults in this class less frequently gave instructions or directives to the entire class than adults in the other classes.

Matrix ratings by the curriculum assistant showed class 1 as having the best implemented Cognitive Curriculum although it was not being implemented to the greatest extent possible and class 3 as having the least well implemented curriculum. Class 1-class 3 comparisons showed that the children in the higher-rated class spent more of their day in teacher-directed activities and used more written material. The children in the lower-rated classroom were more often in child-selected activities, used picture materials more often and were more often in groups containing three to five students.

Figure 17
Goodman's Confidence Intervals of Category 1 Items for First Grade Classes
Greeley, Fall 1972

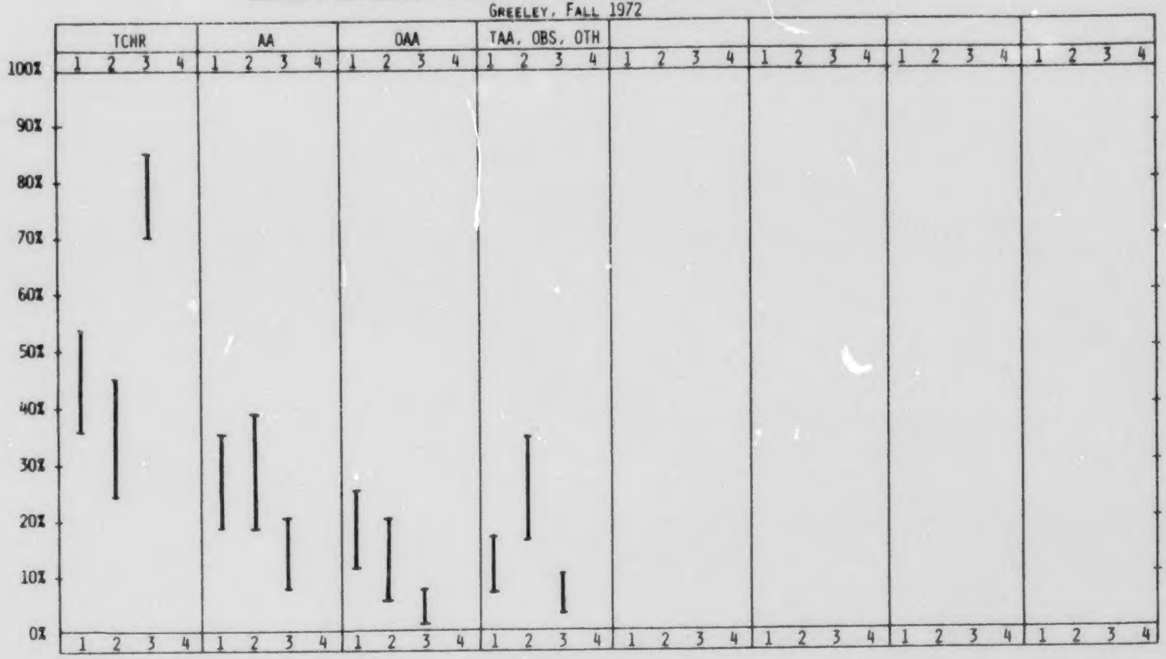


Figure 18
Goodman's Confidence Intervals of Category 4 Items for First Grade Classes
Greeley, Fall 1972

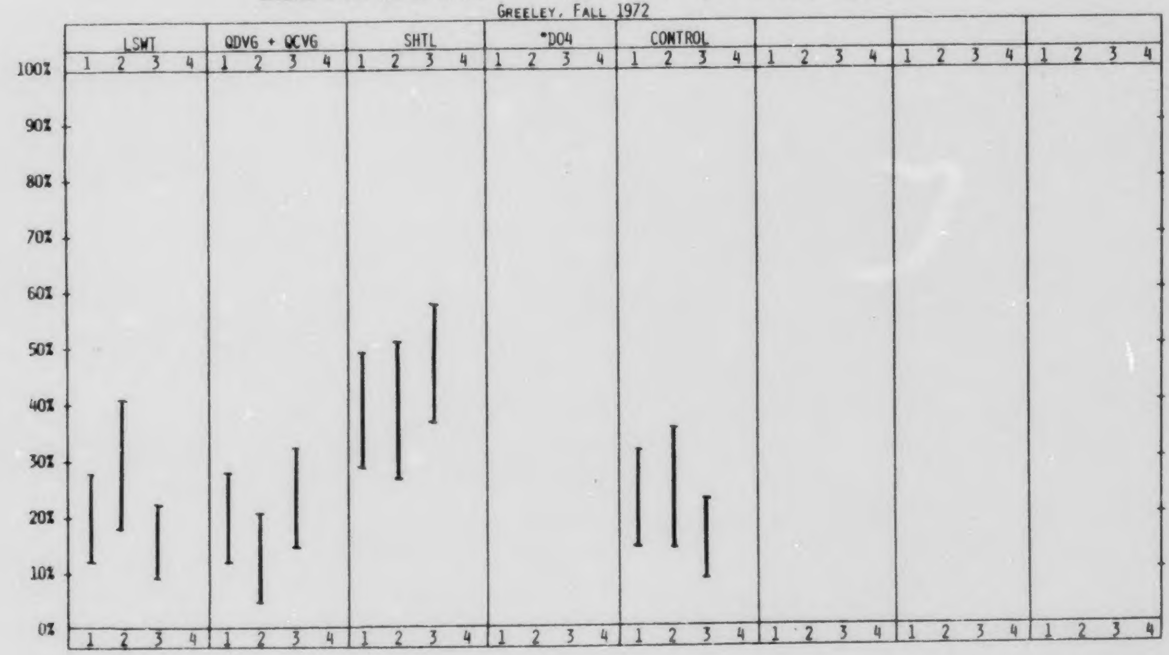


Figure 19

Goodman's Confidence Intervals of Category 5 Items for First Grade Classes

Greeley, Fall 1972

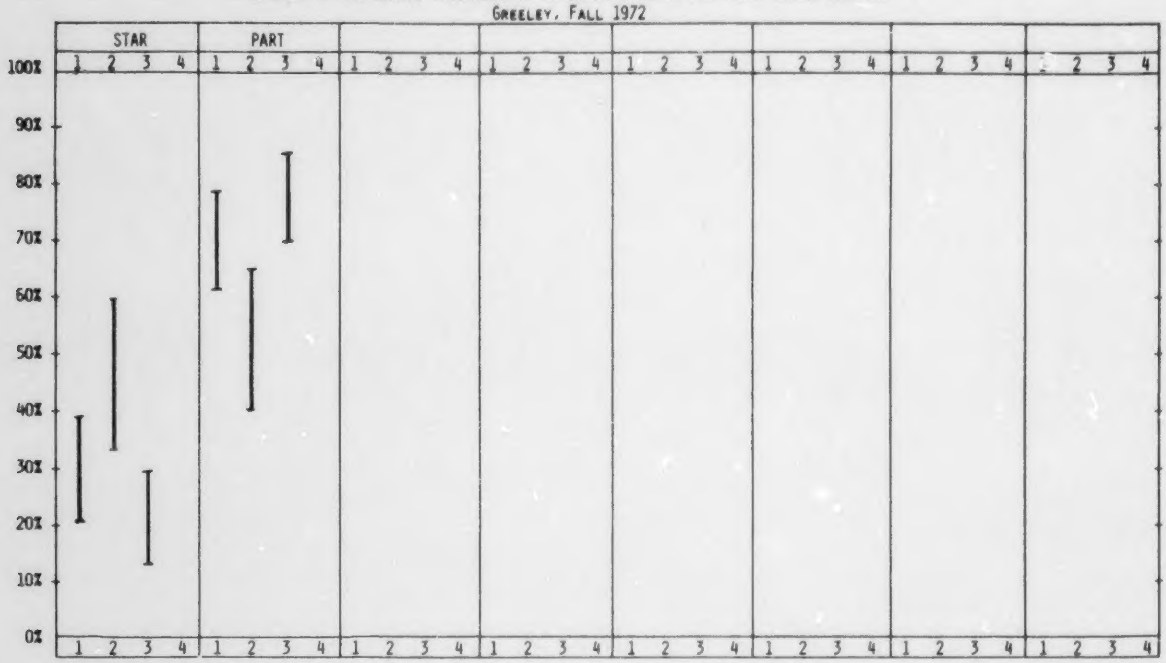


Figure 20

Goodman's Confidence Intervals of Category 7 Items for First Grade Classes

Greeley, Fall 1972

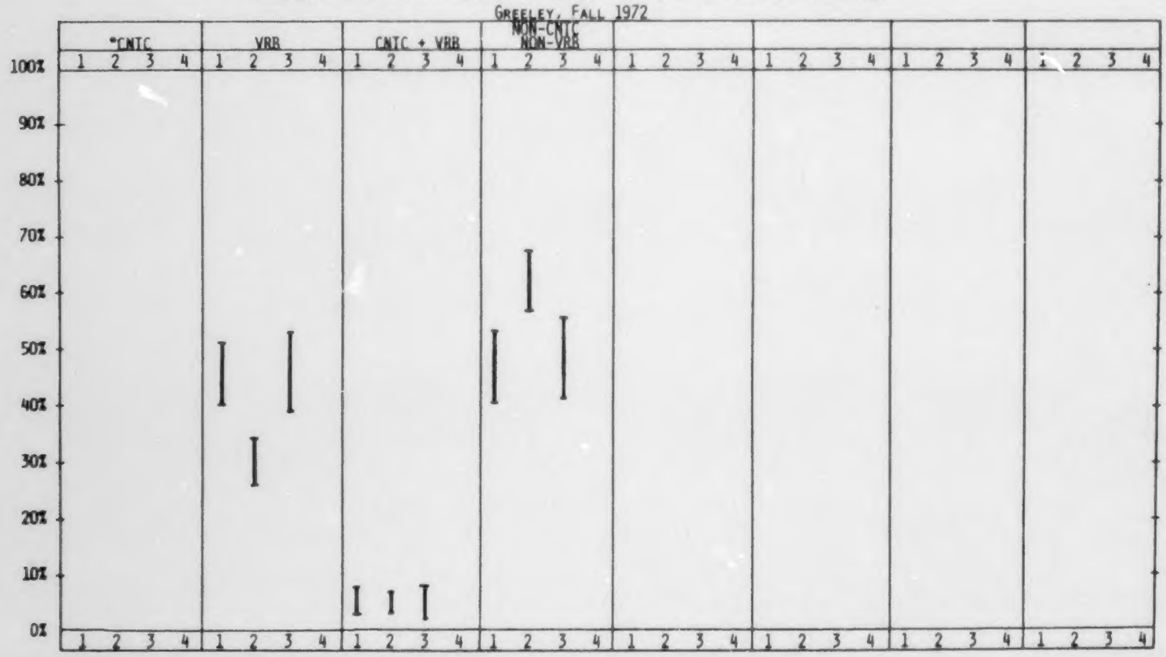


Figure 21
Goodman's Confidence Intervals of Category 9 Items for First Grade Classes
Greeley, Fall 1972

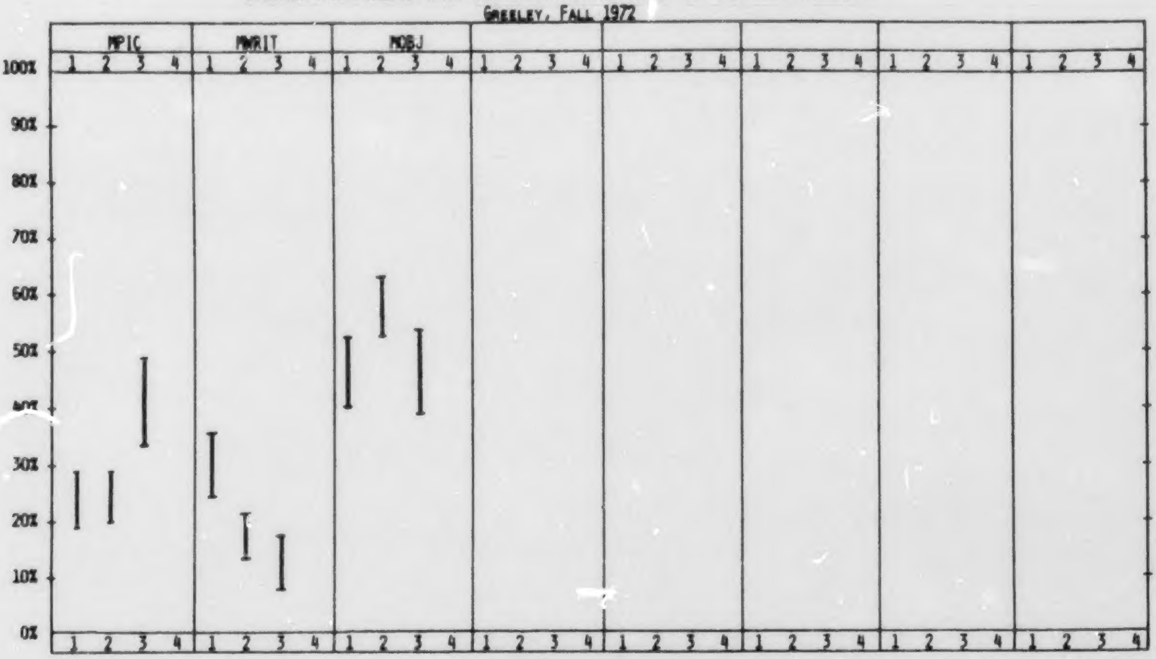


Figure 22
Goodman's Confidence Intervals of Category 12 Items for First Grade Classes
Greeley, Fall 1972

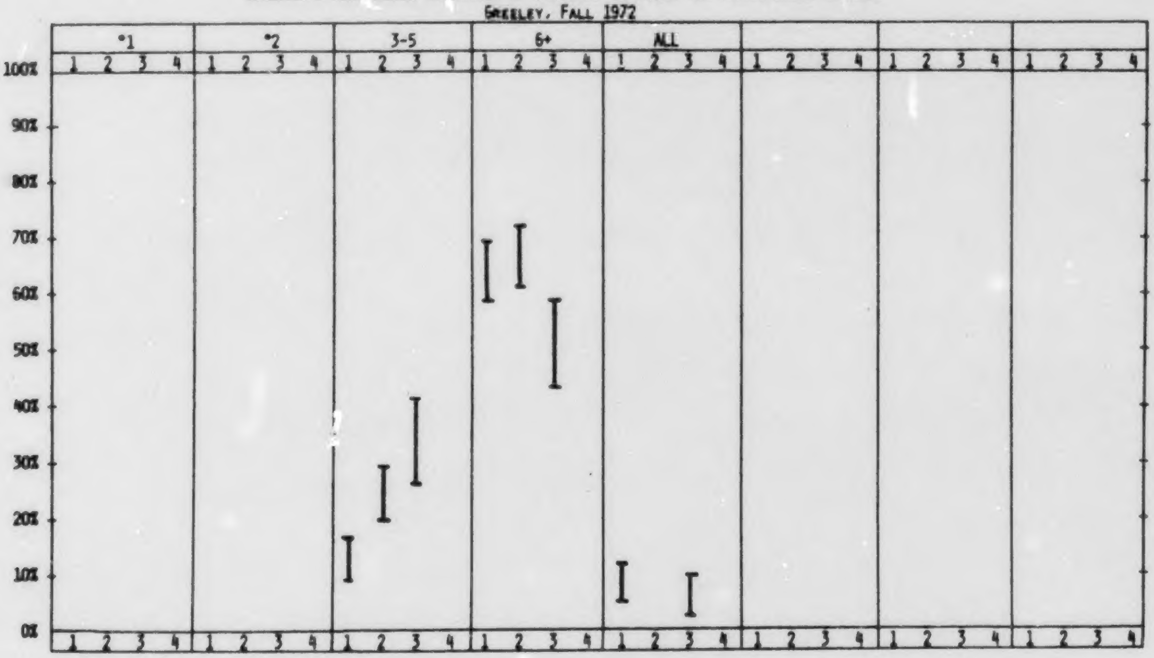


Figure 23
Goodman's Confidence Intervals of Category 15 Items for First Grade Classes
Greeley, Fall 1972

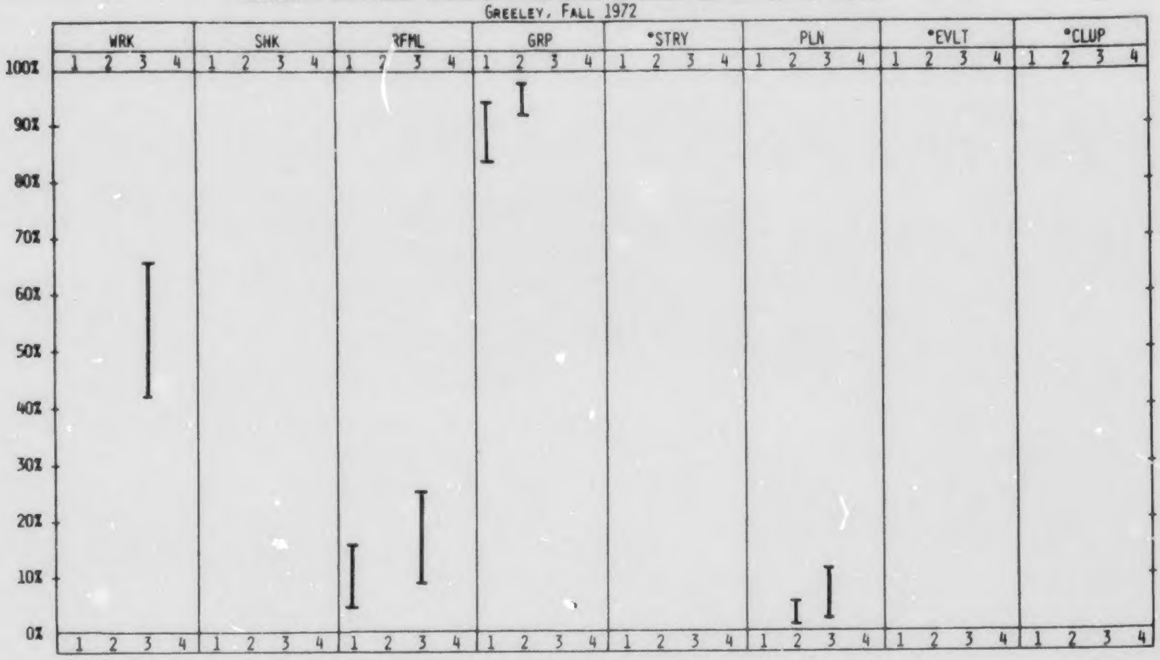
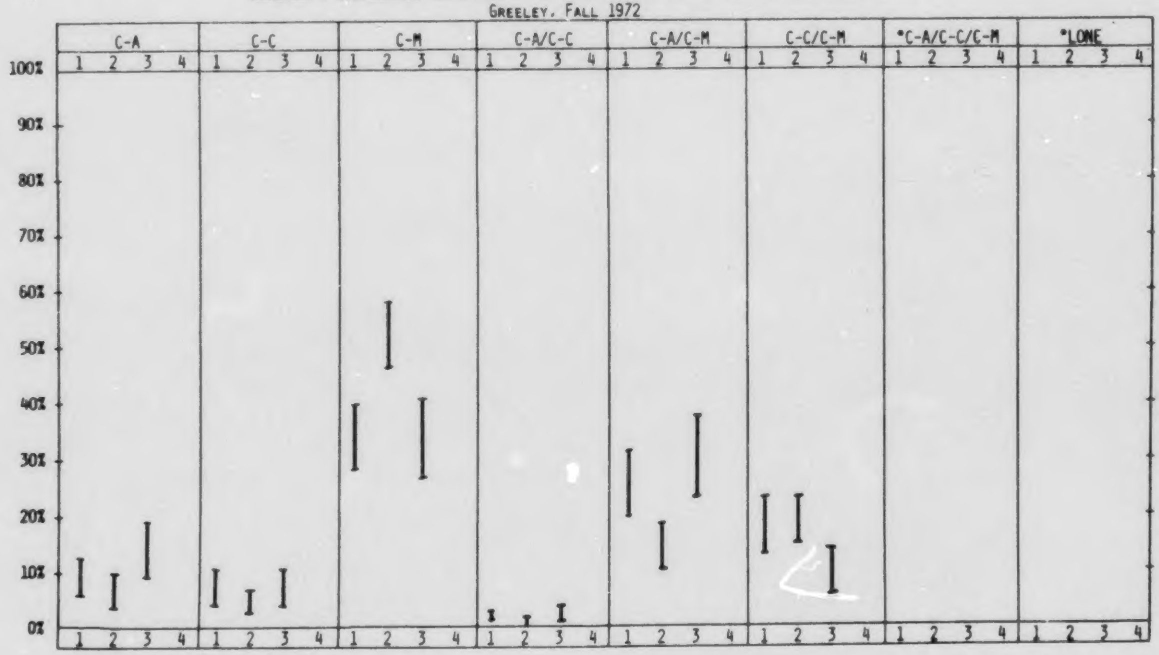


Figure 24
Goodman's Confidence Intervals of Interaction Types for First Grade Classes
Greeley, Fall 1972



Fall Comparisons of the Third Grade Classes in Greeley

The degree of child autonomy, teacher structure and material type differentiated these three classes (see Figures 25-32). Class 3 children spent less time in activities of their choice and used object materials more often and written materials less often than students in other classes.

Class 1 was more structured than class 2 but less structured than class 3. Students in class 1 spent more time in teacher-selected activities than class 2 students but more time in child-selected activities than class 3 students. The children in class 1 used more picture materials and fewer object materials than other students and were more often in groups of more than five students and less often in groups of three to five students than class 2 students.

Curriculum ratings indicated that the curriculum was well implemented in class 2 and less well implemented in class 1. Children in the better-rated classroom, compared to the children in the lower-rated classroom, were more often in small groups (3-5) and used more object materials. In contrast, the children in the lower-rated classroom were more often involved in teacher-structured activities, were more often in larger groups (5+) and used picture materials more often.

Figure 25
Goodman's Confidence Intervals of Category 1 Items for Third Grade Classes
Greeley, Fall 1972

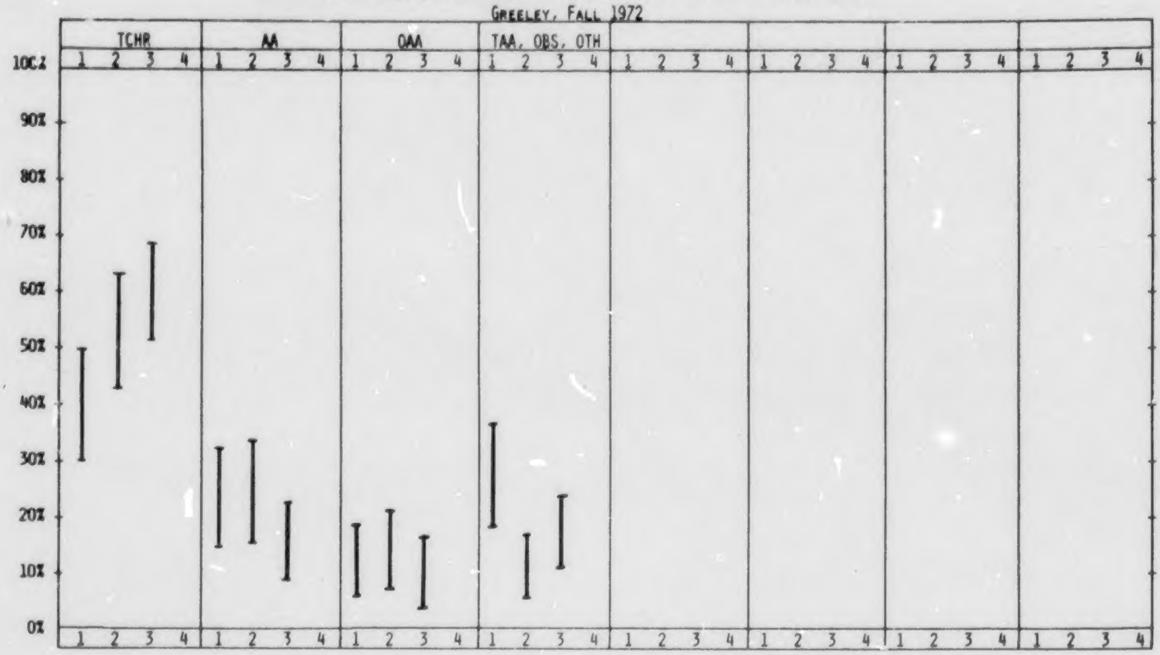


Figure 26
Goodman's Confidence Intervals of Category 4 Items for Third Grade Classes
Greeley, Fall 1972

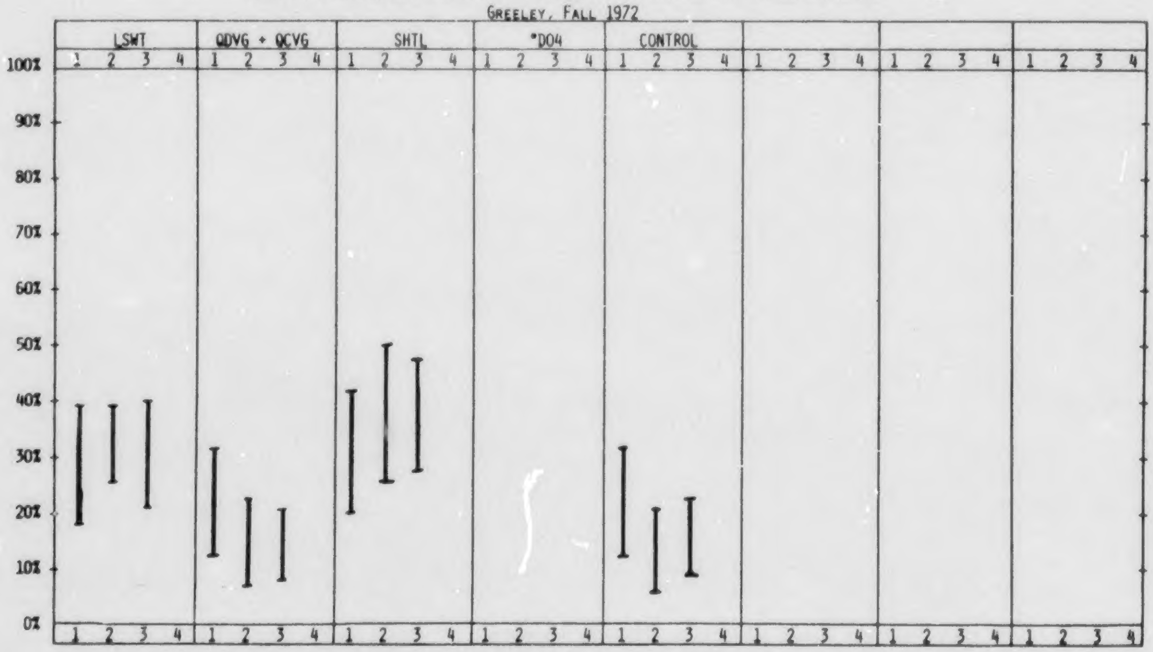


Figure 27

Goodman's Confidence Intervals of Category 5 Items for Third Grade Classes

Greeley, Fall 1972

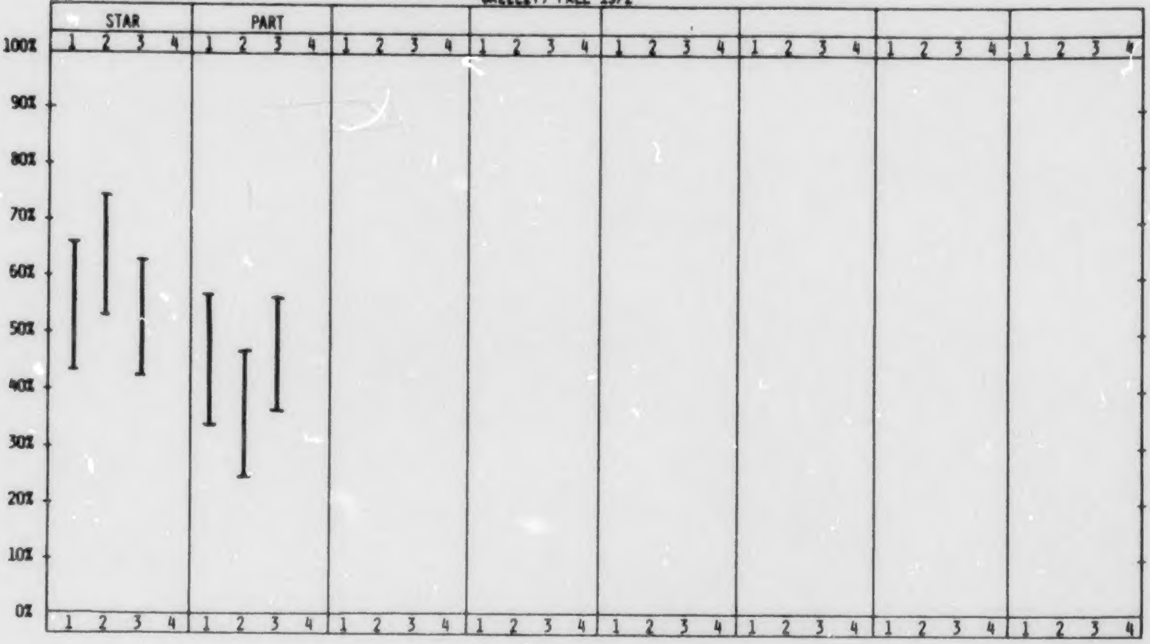


Figure 28

Goodman's Confidence Intervals of Category 7 Items for Third Grade Classes

Greeley, Fall 1972

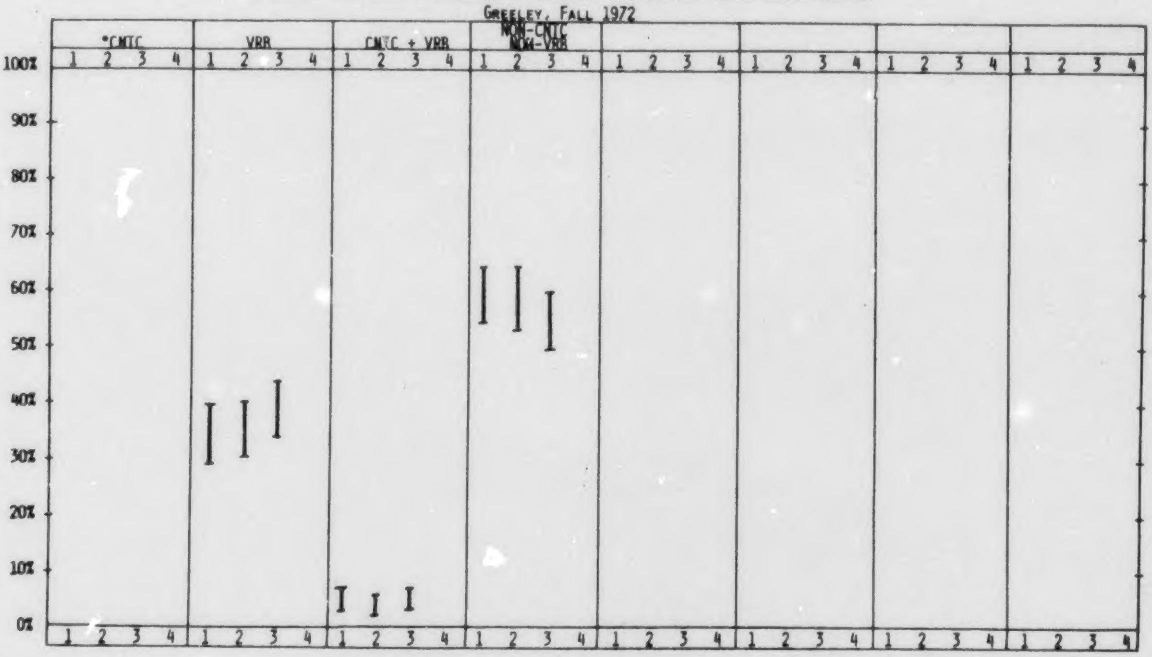


Figure 29
Goodman's Confidence Intervals of Category 9 Items for Third Grade Classes
Greeley, Fall 1972

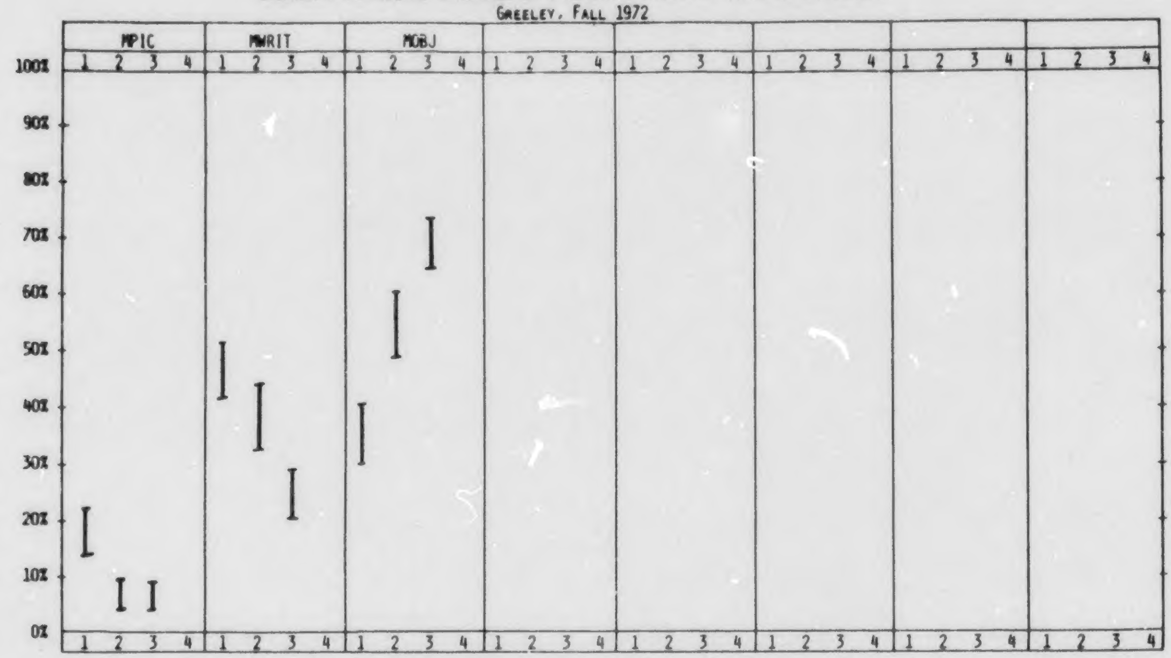


Figure 30
Goodman's Confidence Intervals of Category 12 Items for Third Grade Classes
Greeley, Fall 1972

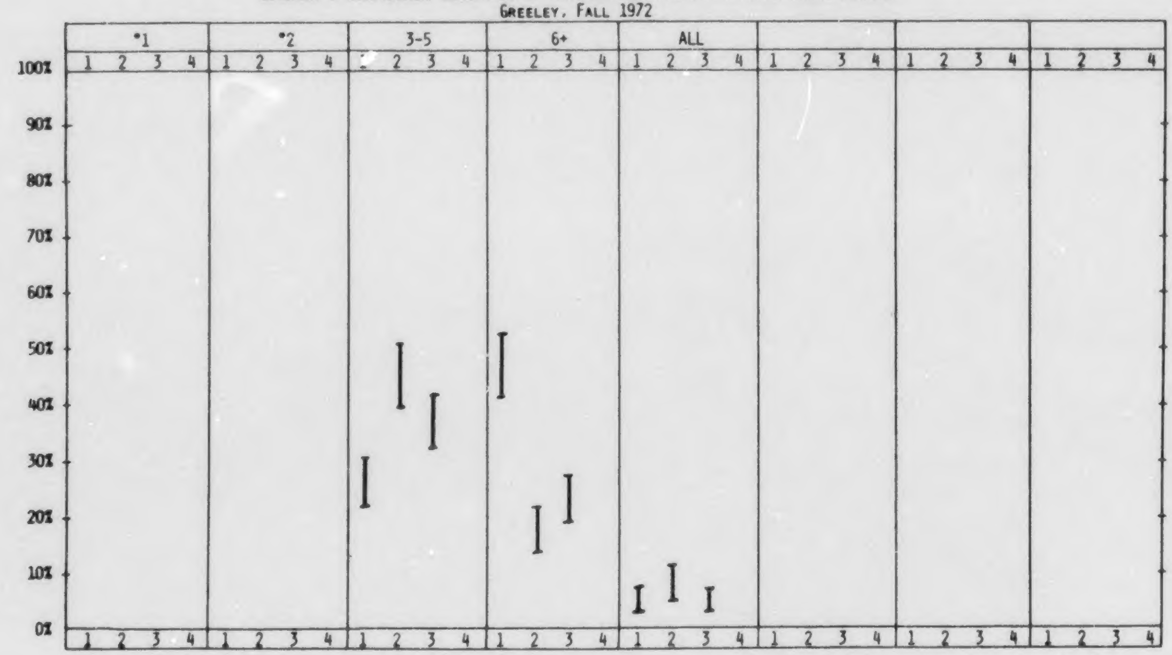


FIGURE 31
GOODMAN'S CONFIDENCE INTERVALS OF CATEGORY 15 ITEMS FOR THIRD GRADE CLASSES
GREELEY, FALL 1972

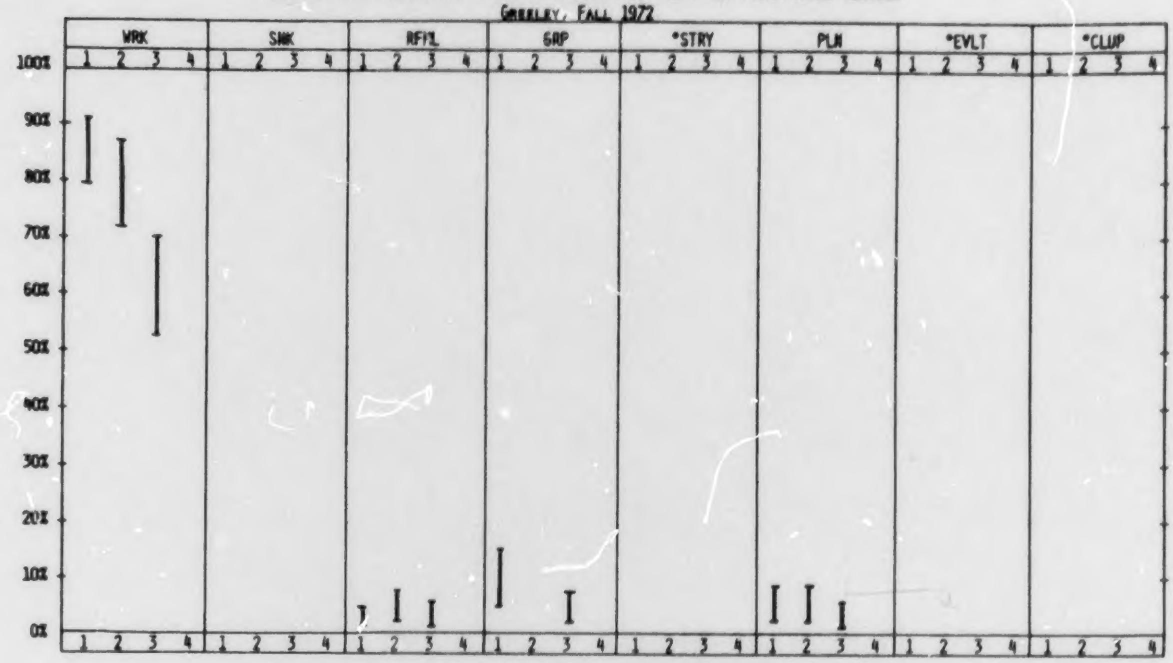
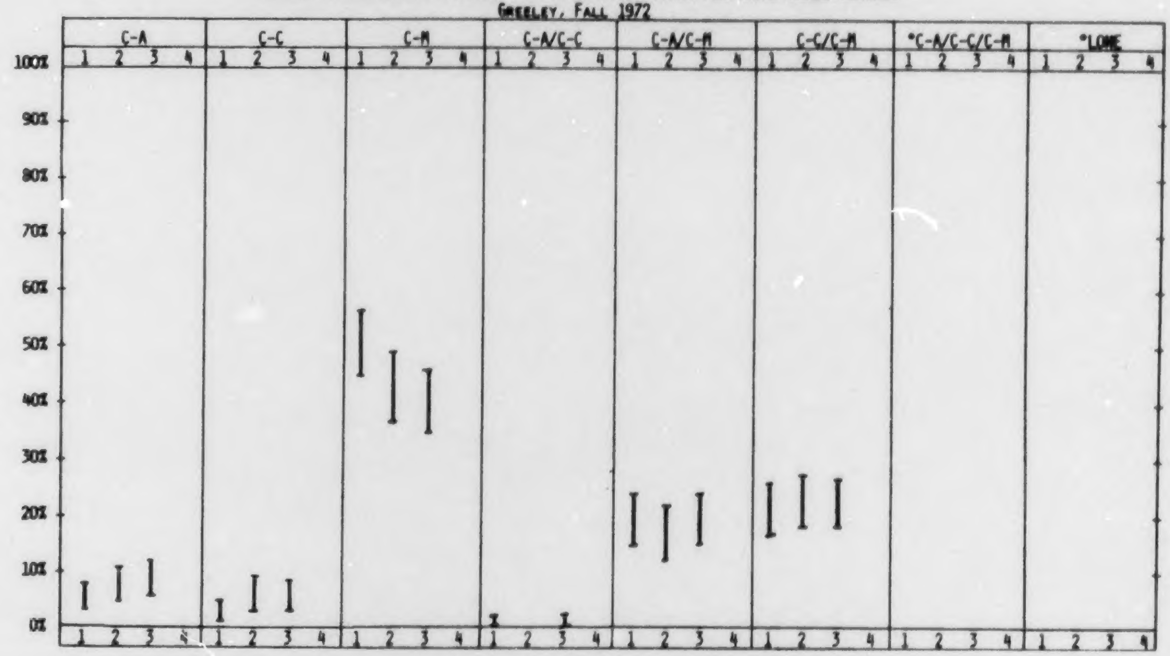


FIGURE 32
GOODMAN'S CONFIDENCE INTERVALS OF INTERACTION TYPES FOR THIRD GRADE CLASSES
GREELEY, FALL 1972



Fall Comparisons of the First Grade Classes in Florida

The four first grade classes in Florida looked different from each other (see Figures 33-41). Class 4 children were more often in teacher-directed activities and class 1 children were more often in child-selected activities. Classes 2 and 3 were between the extremes of classes 1 and 4 with class 2 children spending more time in self-selected activities than class 3 children. The children in these classes, 2 and 3, were more often in groups containing the entire class than students in class 1 and class 4.

Classes 1, 2 and 4 looked similar with respect to material usage. Class 3 children used less object material than other students and less written material than class 1 students.

The interaction type varied across the classes. Class 2 children spent more time in child-adult interactions than other students and children in classes 1 and 2 engaged in child-material interactions more frequently than class 3 students. Child-adult/child-child/child-material interactions occurred more frequently in classes 3 and 4 than in classes 1 and 2 and child-adult/child-child interactions occurred more frequently in classes 3 and 4 than in class 2. Class 1 students, compared to class 2 students, interacted more often with both peers and materials and less often with peers only.

Curriculum assistant ratings indicated that classes 3 and 4 were implementing the curriculum the best and that class 2 was implementing it the least well. Children in the better-rated classes, compared to the children in the lower-rated class, spent more time in teacher-structured activities and less time in child-selected activities and were more frequently involved in child-adult/child-material interactions and child-adult/child-child/child-material interactions.

Figure 33
Goodman's Confidence Intervals of Category 1 Items for First Grade Classes
Florida, Fall 1972

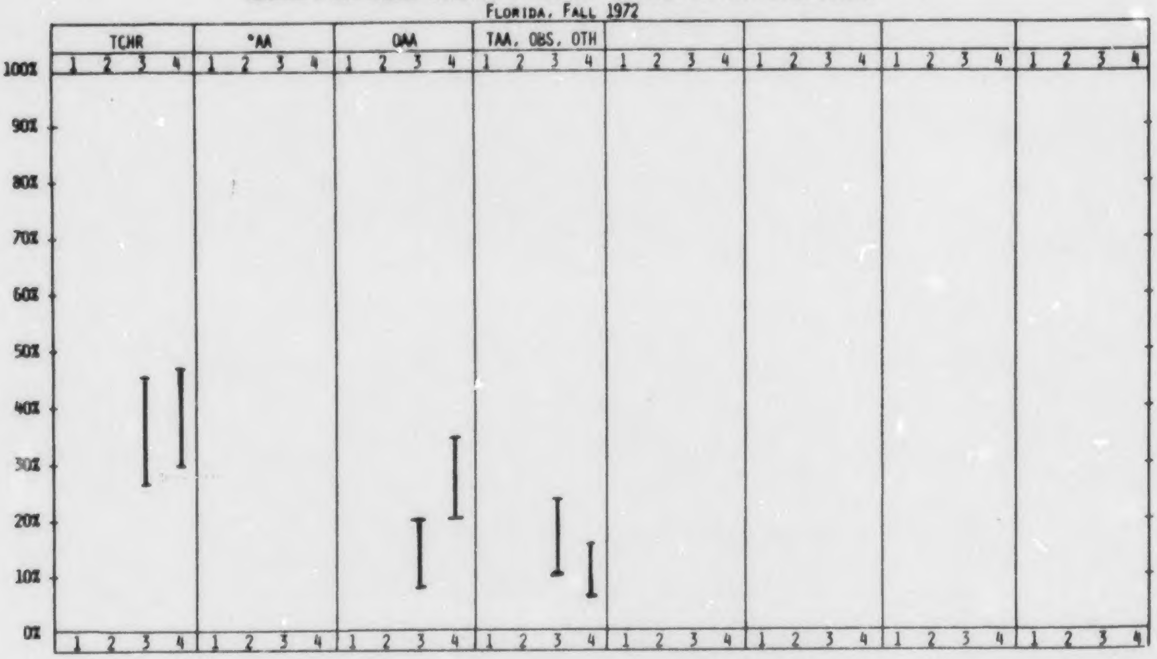


Figure 34
Goodman's Confidence Intervals of Category 4 Items for First Grade Classes
Florida, Fall 1972

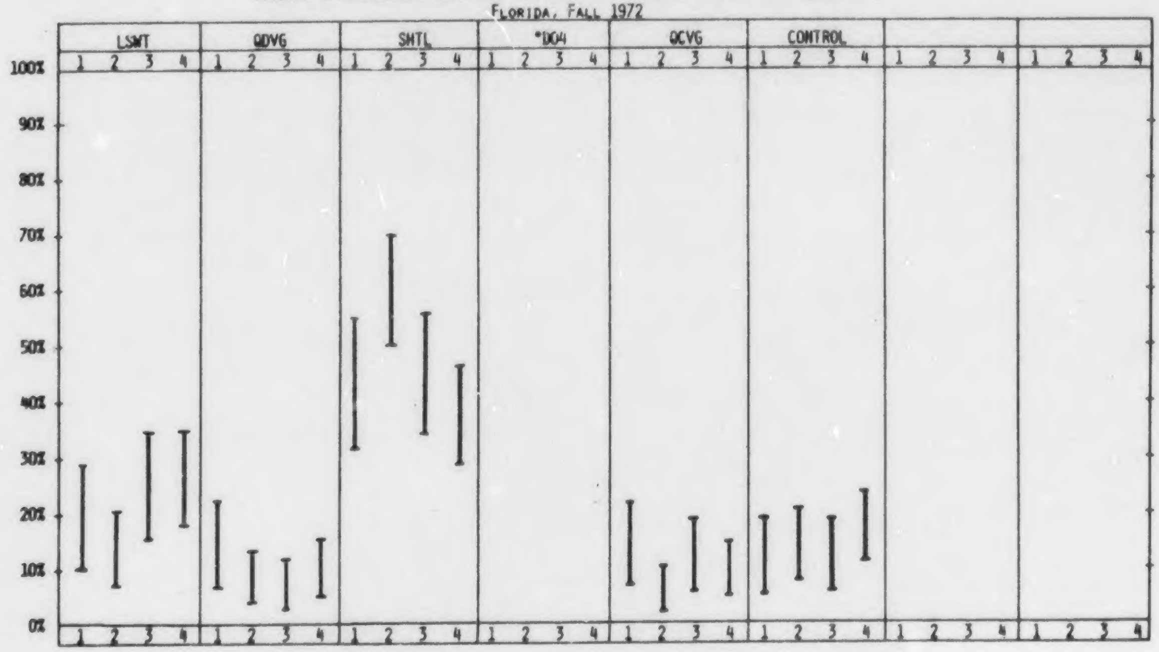


Figure 35
Goodman's Confidence Intervals of Category 5 Items for First Grade Classes
Florida, Fall 1972

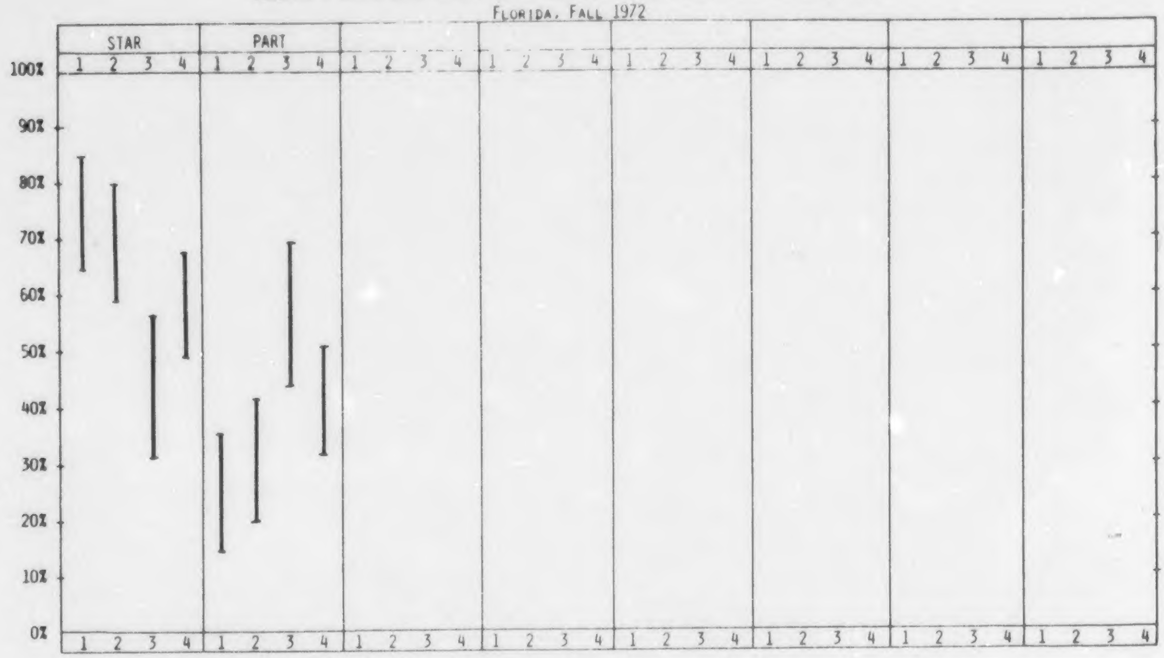


Figure 36
Goodman's Confidence Intervals of Category 6 Items for First Grade Classes
Florida, Fall 1972

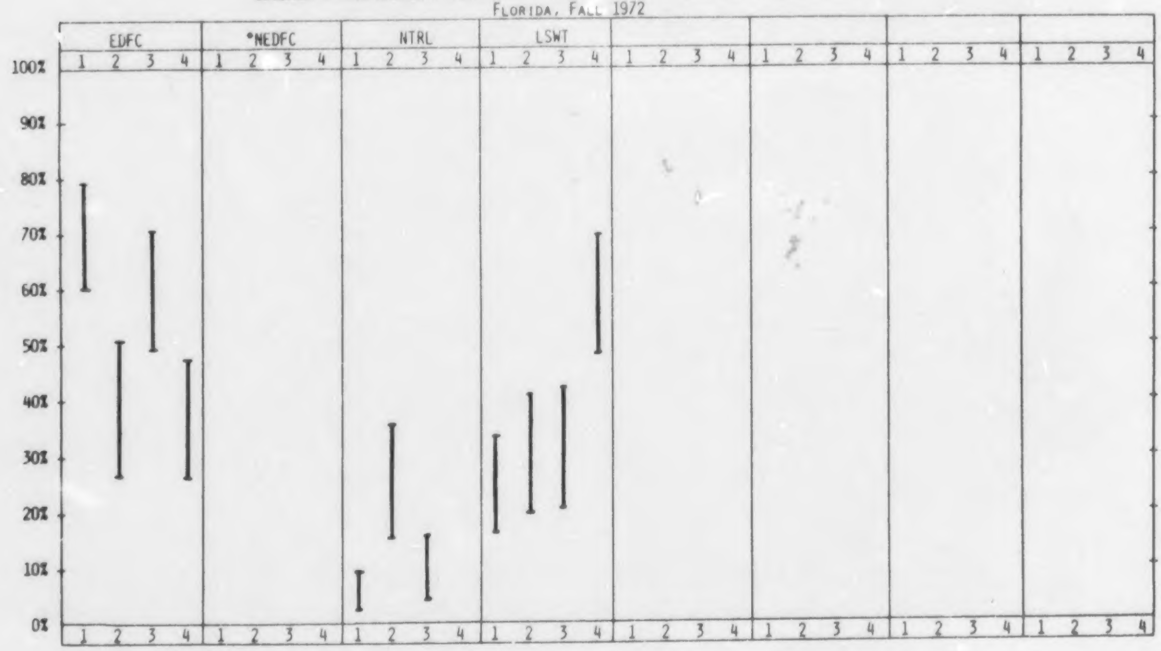


FIGURE 37

GOODMAN'S CONFIDENCE INTERVALS OF CATEGORY 7 ITEMS FOR FIRST GRADE CLASSES

FLORIDA, FALL 1972

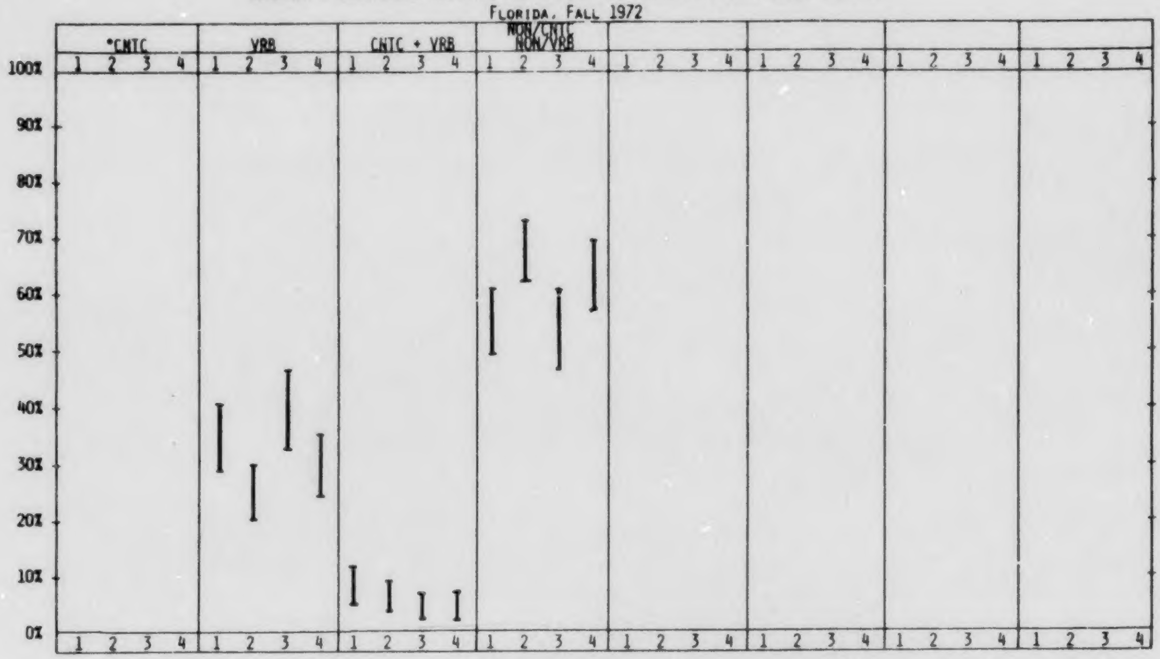


FIGURE 38

GOODMAN'S CONFIDENCE INTERVALS OF CATEGORY 9 ITEMS FOR FIRST GRADE CLASSES

FLORIDA, FALL 1972

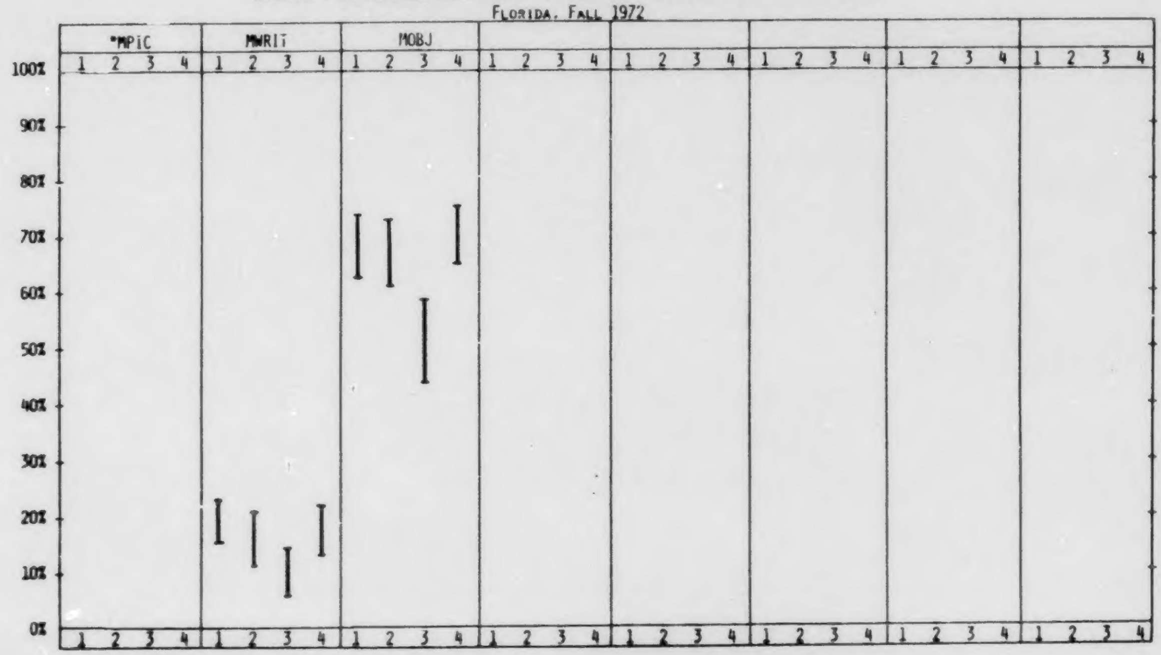


Figure 39
Goodman's Confidence Intervals of Category 12 Items for First Grade Classes
Florida, Fall 1972

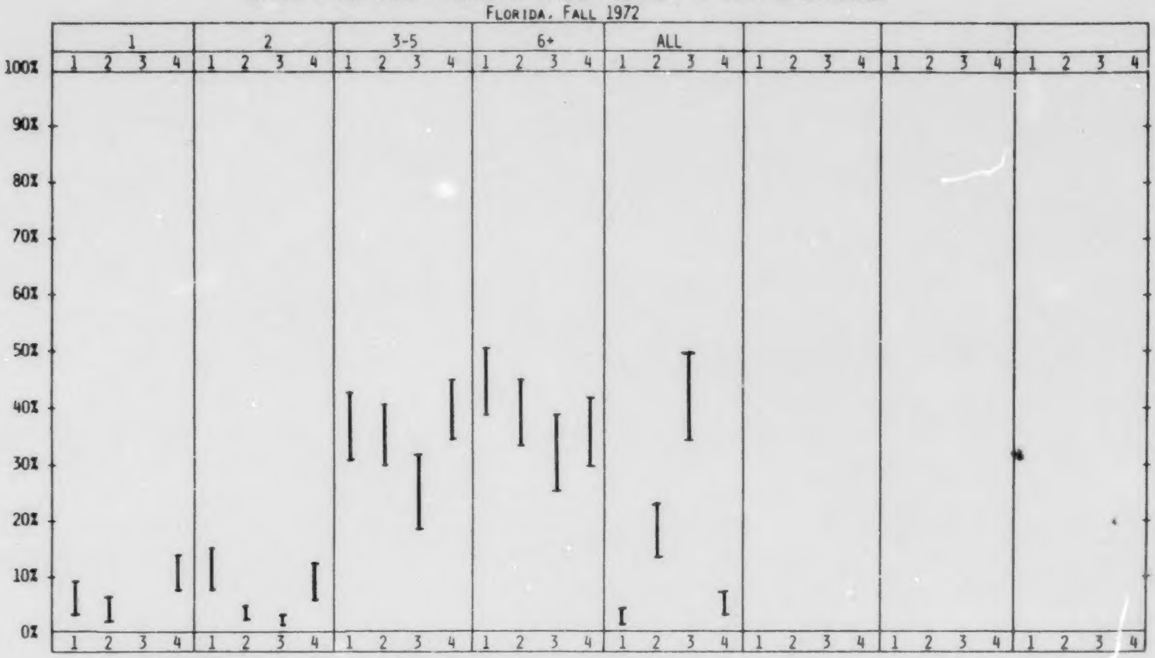


Figure 40
Goodman's Confidence Intervals of Category 15 Items for First Grade Classes
Florida, Fall 1972

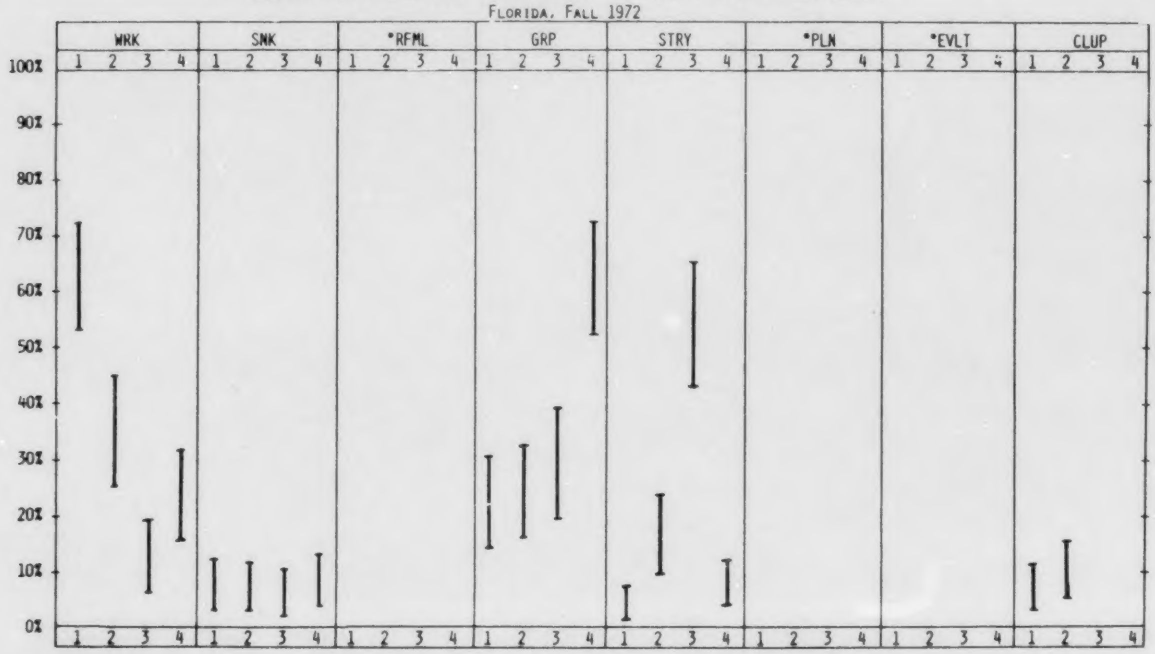
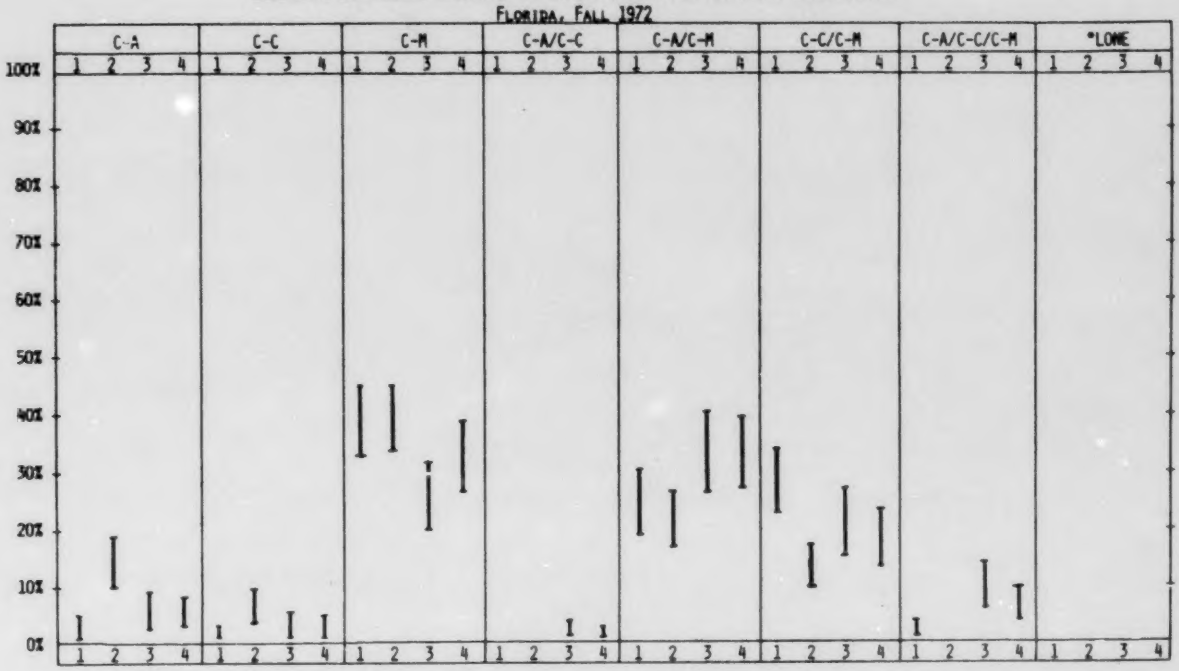


Figure 41
Goodman's Confidence Intervals of Interaction Types for First Grade Classes
Florida, Fall 1972



Fall Comparisons of the Third Grade Classes in Florida

Classes 1 and 2 were similar as were classes 3 and 4 (see Figures 42-50). The children in classes 1 and 2, compared to children in classes 3 and 4, spent more of their day in activities of their choice and less time in teacher-structured activities, used more written materials and fewer object materials and were more often in smaller groups and less often in groups containing more than five students or the entire class.

The types of interaction did differ across classes 1 and 2. Class 1 children were more often engaged in child-adult/child-material interactions and less often engaged in child-child interactions and child-adult/child-child interactions. Class 2 students tended to interact more often with adults and with peers. They were more frequently involved in child-adult/child-child interactions than class 1 and 3 students and were more often involved in child-adult/child-child/child-material interactions than class 4 students. Class 3 children were less often engaged in child-adult interactions than other students. Class 4 students interacted more often with just materials than class 2 students.

In terms of curriculum implementation the curriculum assistant rated class 1 as the best implemented and class 4 as the least well implemented. Differences between the highest-rated and lowest-rated classes were seen in the kinds of materials used, the group size and in the amount of teacher-structured or child-structured activities. The children in the better implemented class used more written materials, were more often in groups containing two students and spent more time in activities of their choice. Large groups, object materials and teacher direction characterized the lowest-rated class.

Figure 42
Goodman's Confidence Intervals of Category 1 Items for Third Grade Classes
Florida, Fall 1972

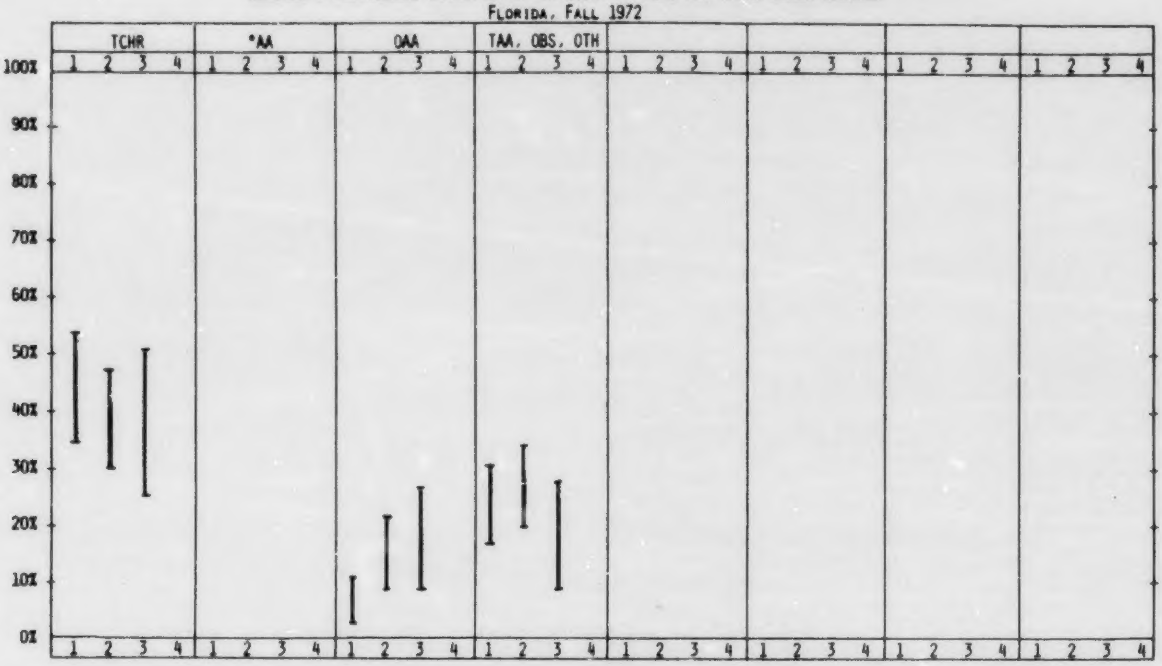


Figure 43
Goodman's Confidence Intervals of Category 4 Items for Third Grade Classes
Florida, Fall 1972

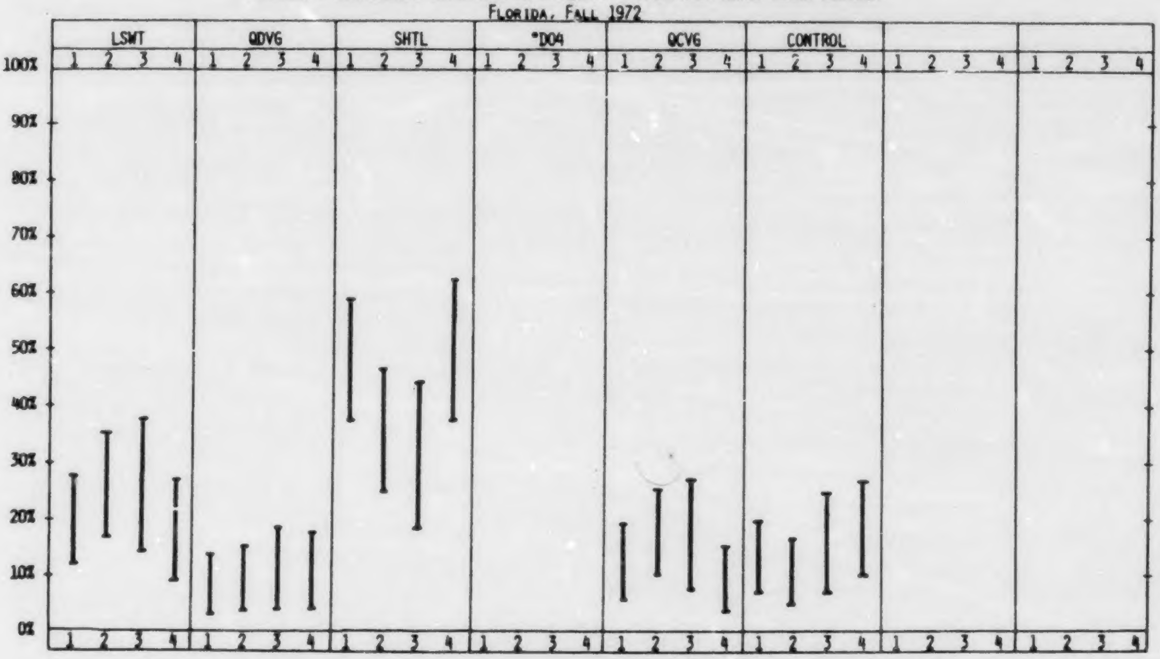


Figure 44

Goodman's Confidence Intervals of Category 5 Items for Third Grade Classes

Florida, Fall 1972

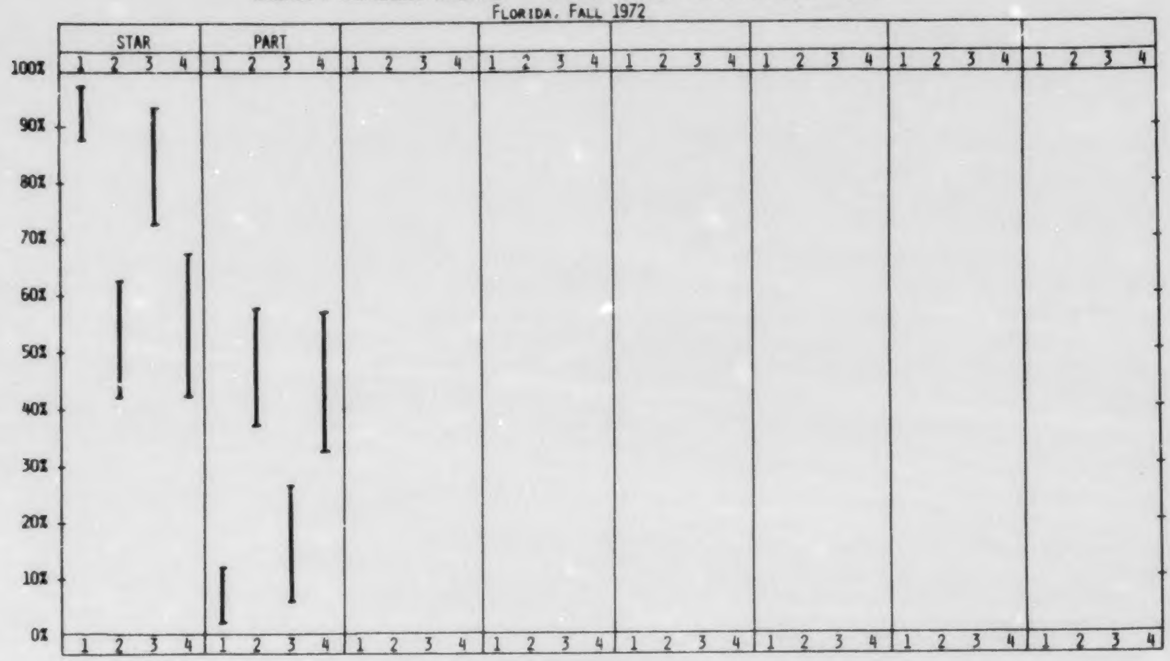


Figure 45

Goodman's Confidence Intervals of Category 6 Items for Third Grade Classes

Florida, Fall 1972

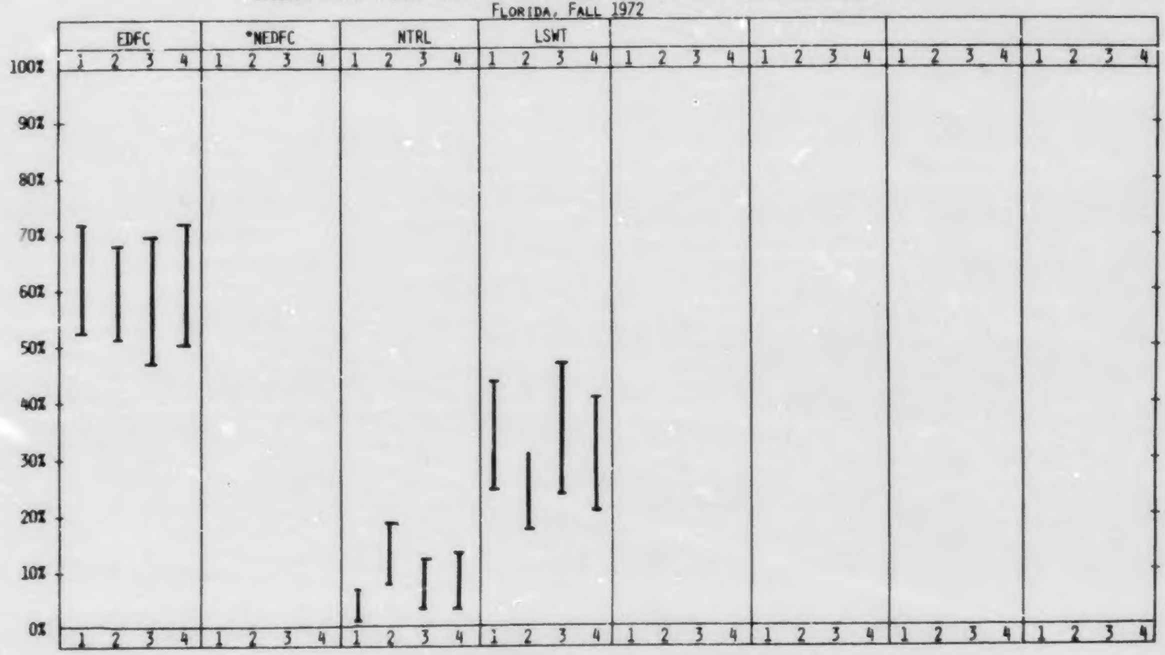


Figure 46
Goodman's Confidence Intervals of Category 7 Items for Third Grade Classes
Florida, Fall 1972

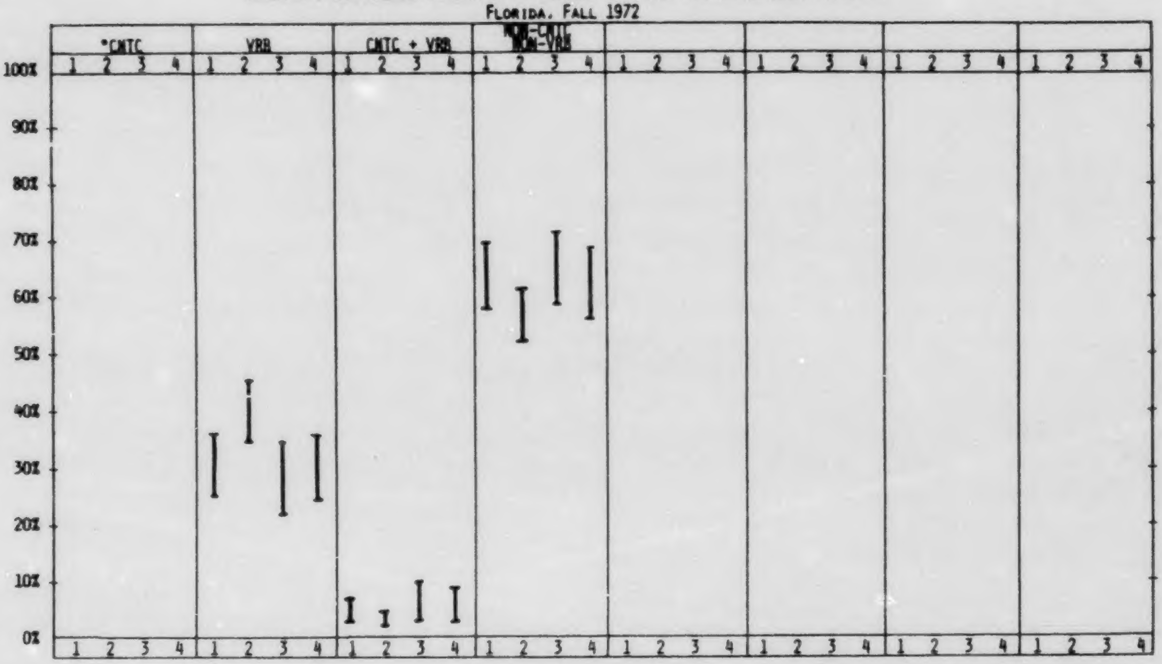


Figure 47
Goodman's Confidence Intervals of Category 9 Items for Third Grade Classes
Florida, Fall 1972

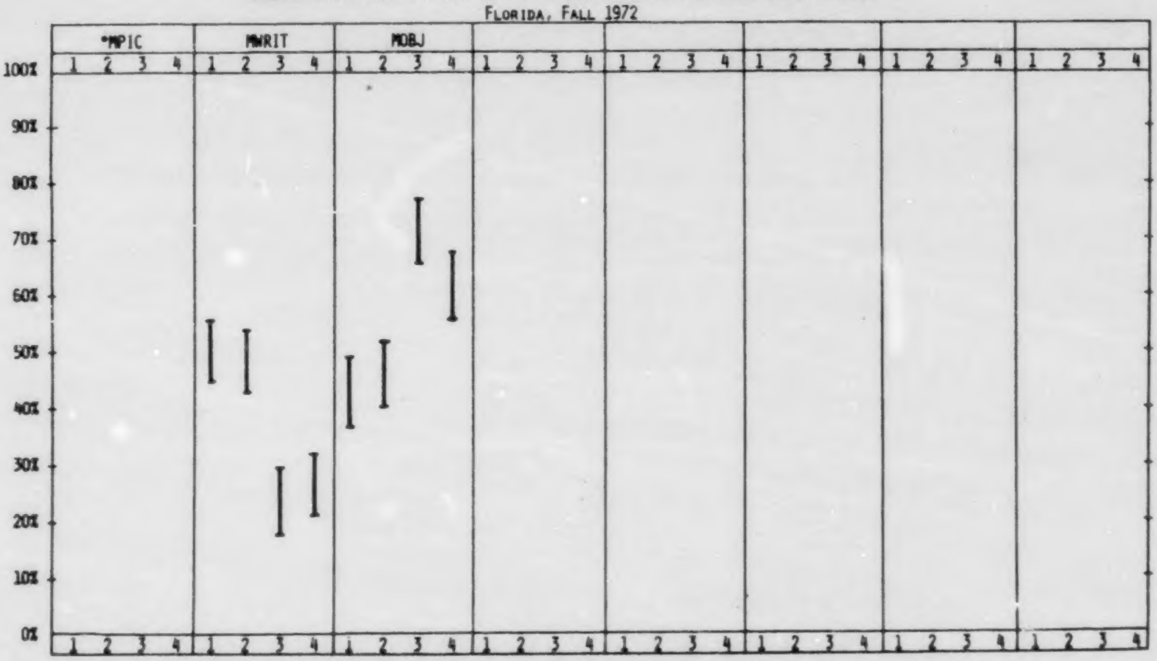


Figure 48
Goodman's Confidence Intervals of Category 12 Items for Third Grade Classes
Florida, Fall 1972

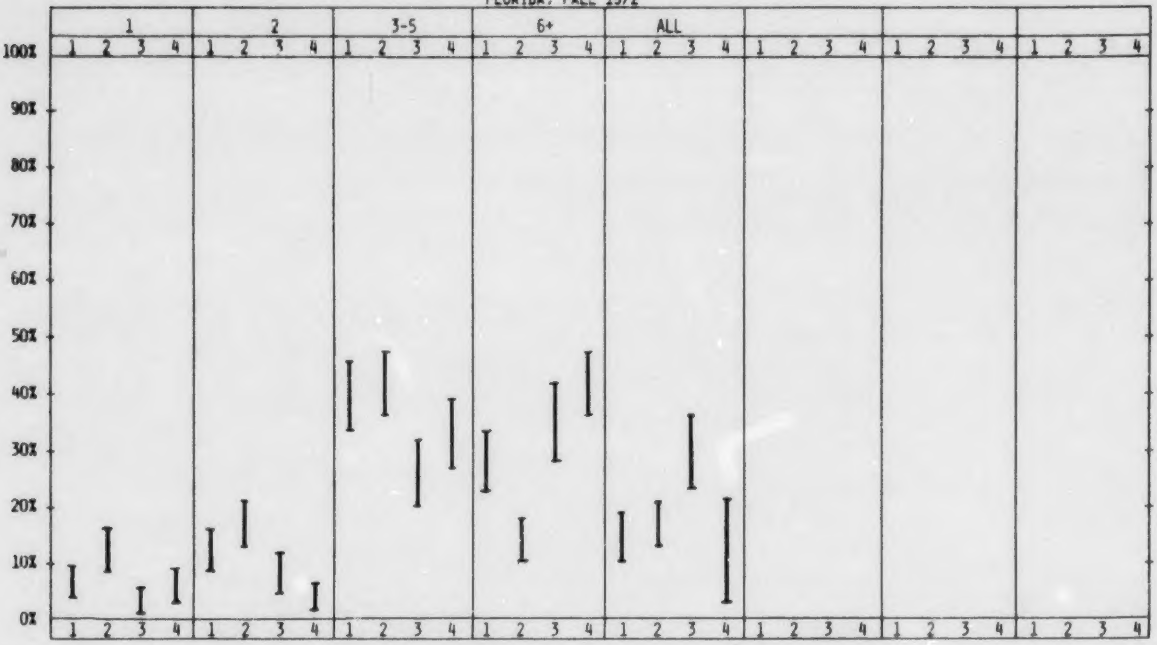


Figure 49
Goodman's Confidence Intervals of Category 15 Items for Third Grade Classes
Florida, Fall 1972

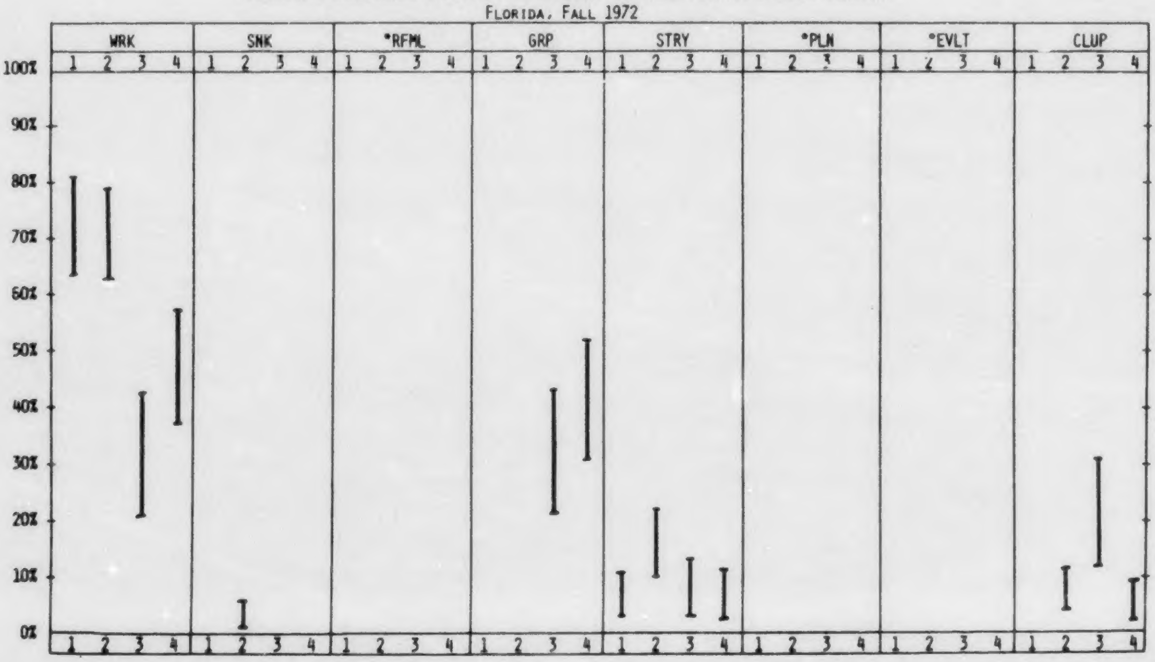
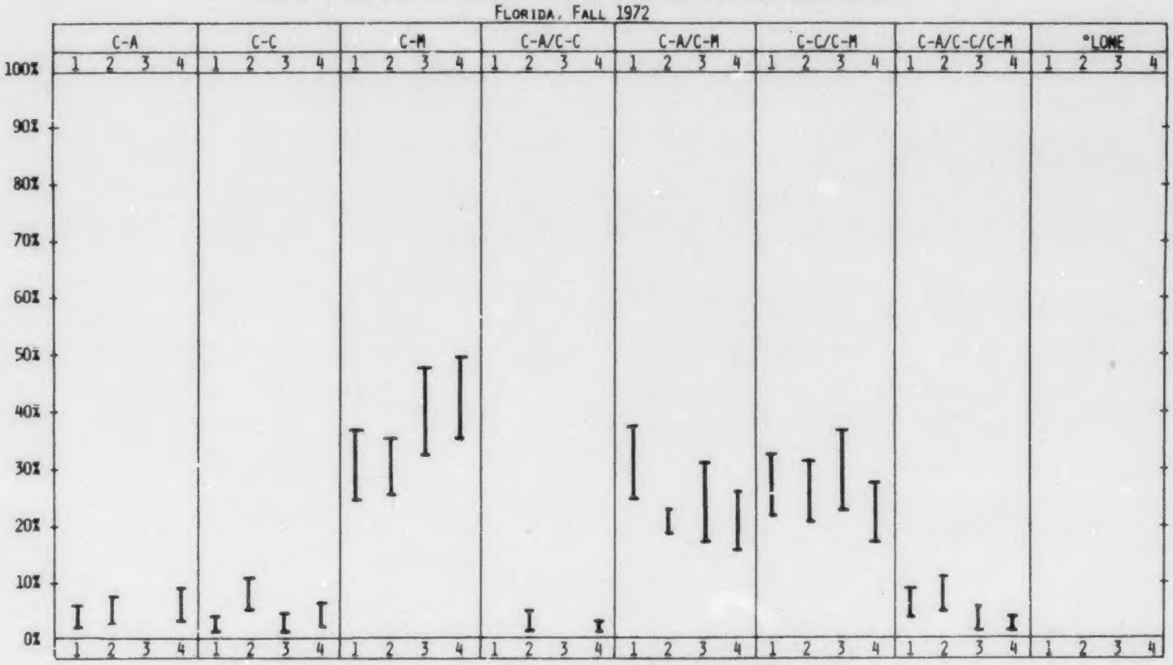


Figure 50
Goodman's Confidence Intervals of Interaction Types for Third Grade Classes
Florida, Fall 1972



Fall Comparisons of the First Grade Classes in New York

Differences among three of the first grade classes (1, 3 and 4) were slight (see Figures 51-59). Children in classes 1 and 3 spent the same amount of time in teacher-directed activity and in activities of their choice, were in comparable sized groups, used the same kind of materials and were involved in the same kinds of interactions. Class 4 children compared to class 1 and 3 children, spent a similar amount of time in teacher-directed activities and child-selected activities and interaction types but used object materials more frequently in the classroom. They were also more often in groups containing more than five students than were class 1 students.

The amount of child autonomy and teacher-directiveness differentiated class 2 from the other classes. The children in this class spent less time in teacher-directed activities than students in other classes and more time in activities of their choice than students in classes 3 and 4. Compared to students in classes 1 and 3, class 2 students used written materials less often. They also used object materials more frequently and were more often in groups containing the entire class and less often in groups containing from three to five students than class 1 students.

Class 1 is rated by the curriculum assistants as being the best implemented and class 3 is rated as the least well implemented. The observation data showed no differences between these two classes.

Figure 51

Goodman's Confidence Intervals of Category 1 Items for First Grade Classes

New York, Fall 1972

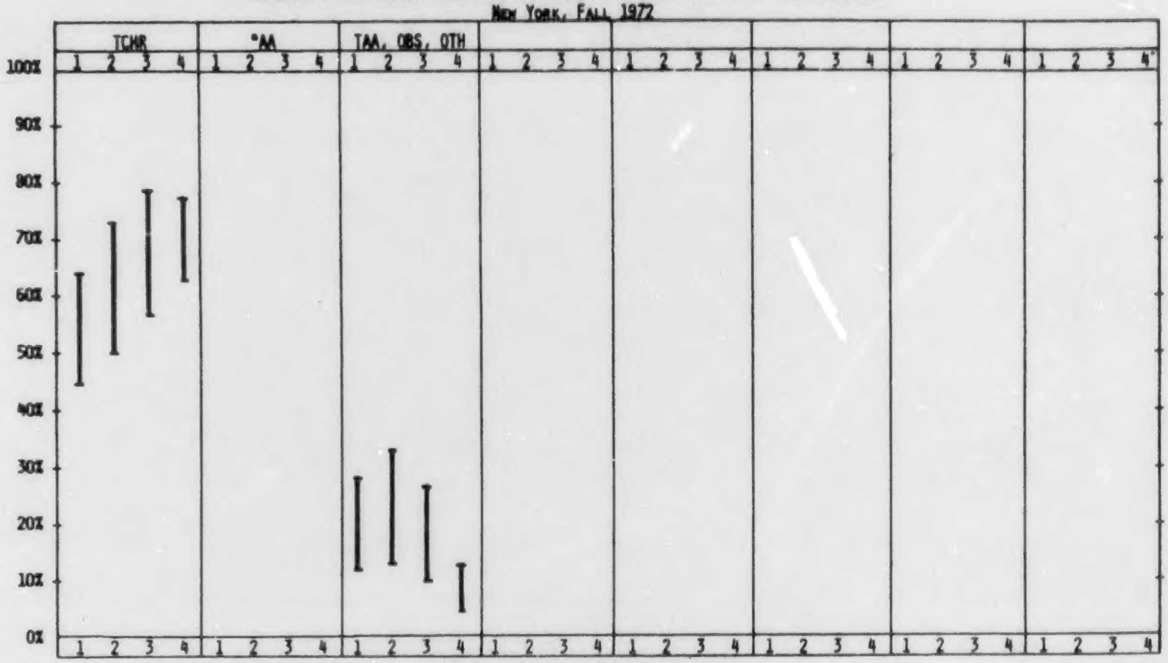


Figure 52

Goodman's Confidence Intervals of Category 4 Items for First Grade Classes

New York, Fall 1972

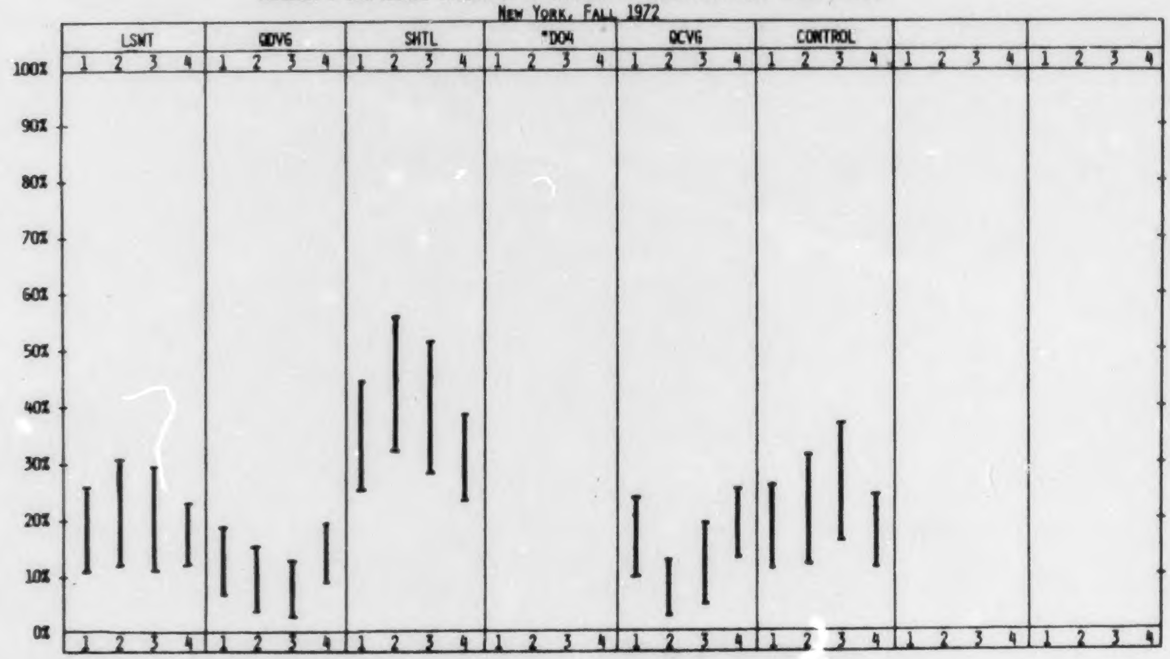


Figure 53

Goodman's Confidence Intervals of Category 5 Items for First Grade Classes
New York, Fall 1972

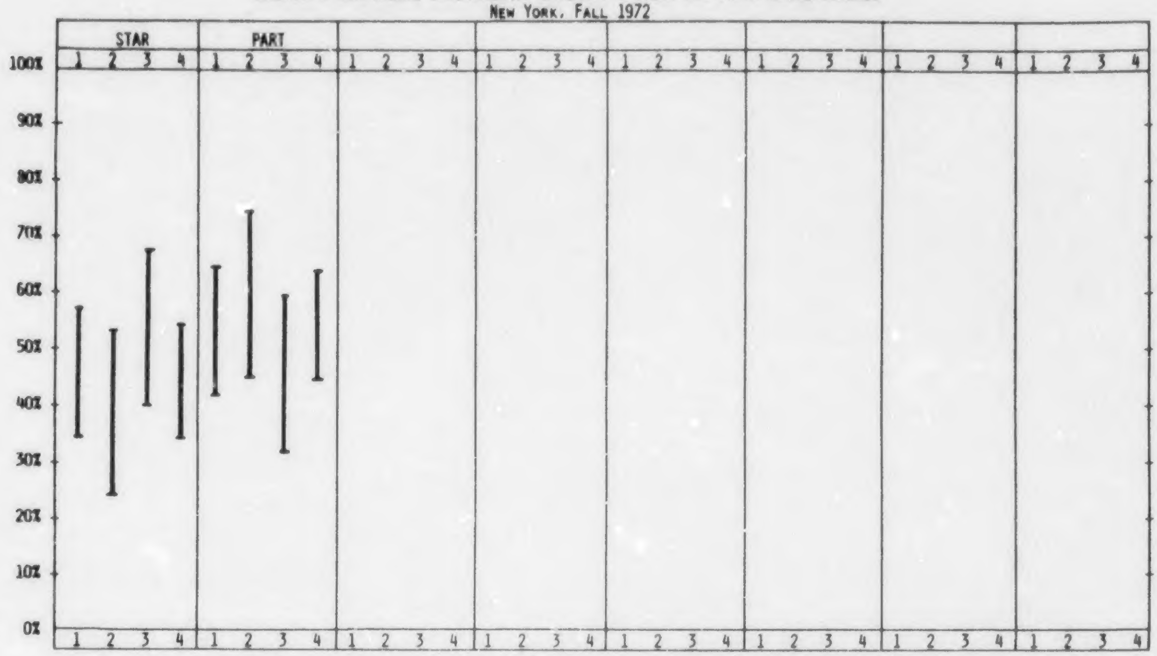


Figure 54

Goodman's Confidence Intervals of Category 6 Items for First Grade Classes
New York, Fall 1972

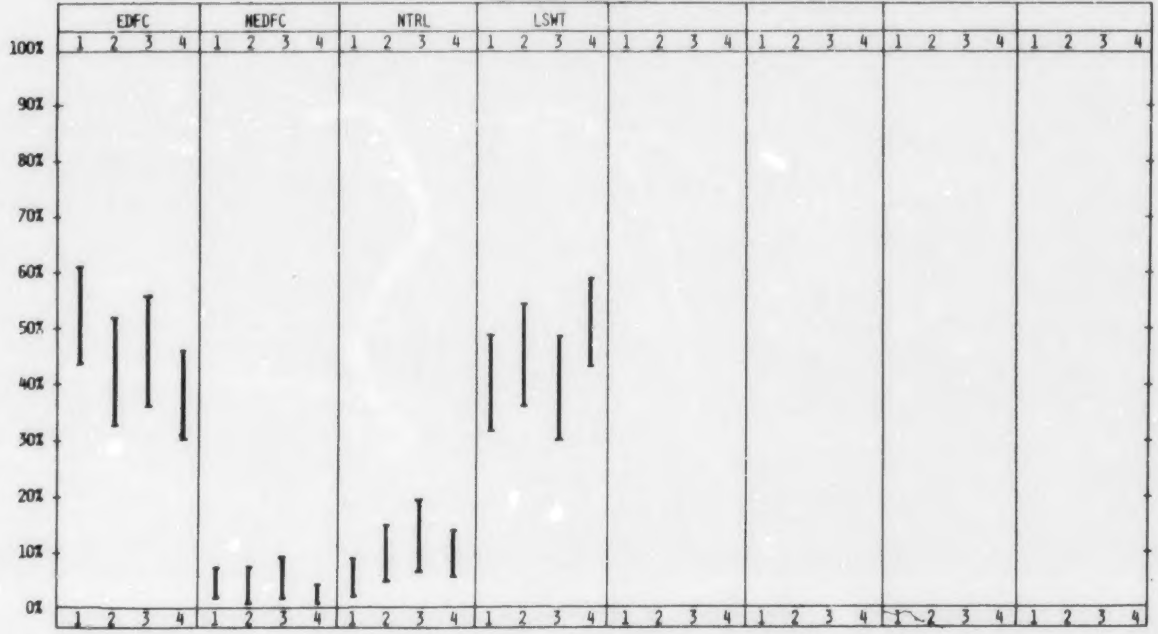


Figure 55

Goodman's Confidence Intervals of Category 7 Items for First Grade Classes

New York, Fall 1972

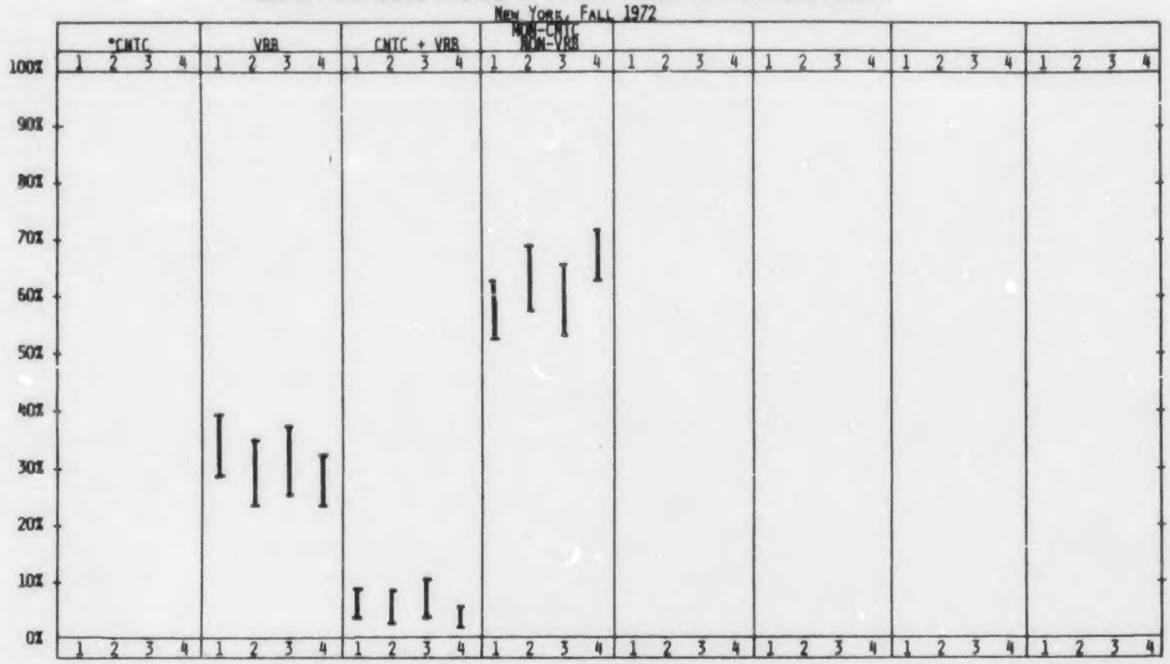


Figure 56

Goodman's Confidence Intervals of Category 9 Items for First Grade Classes

New York, Fall 1972

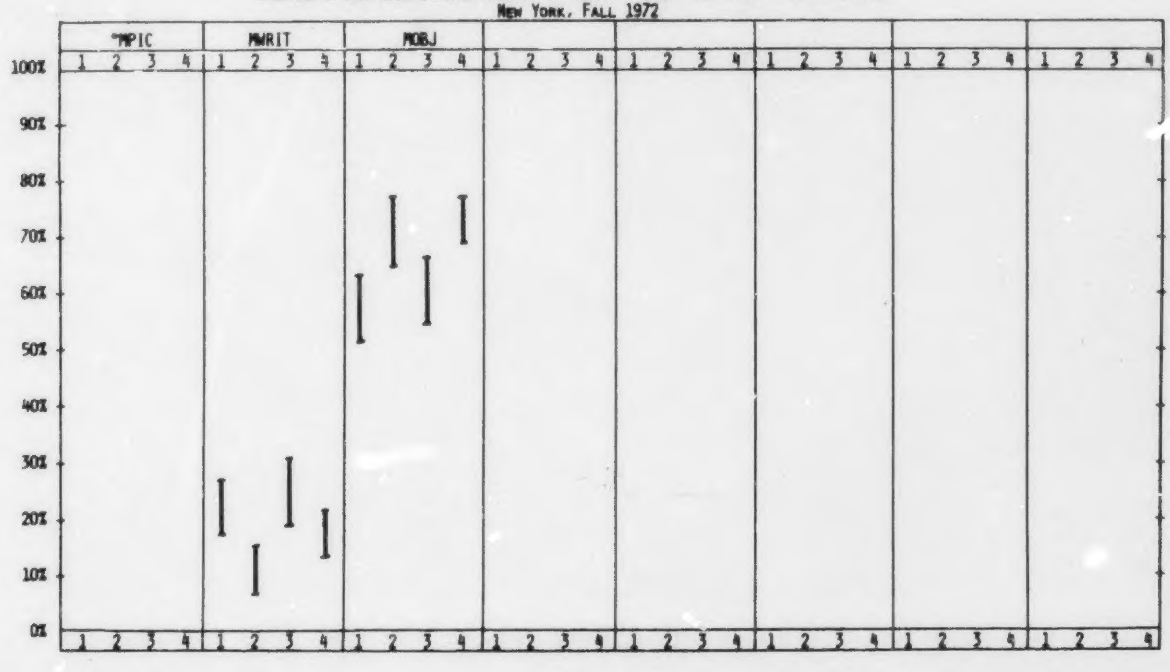


Figure 57

Goodman's Confidence Intervals of Category 12 Items for First Grade Classes

New York, Fall 1972

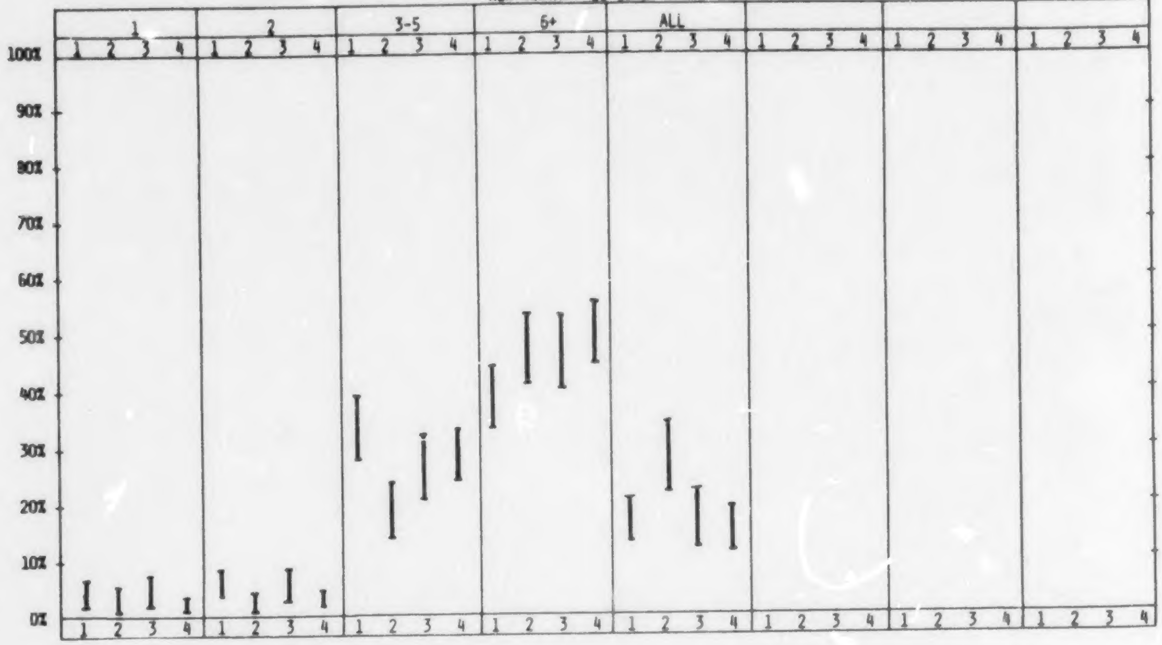


Figure 58

Goodman's Confidence Intervals of Category 15 Items for First Grade Classes

New York, Fall 1972

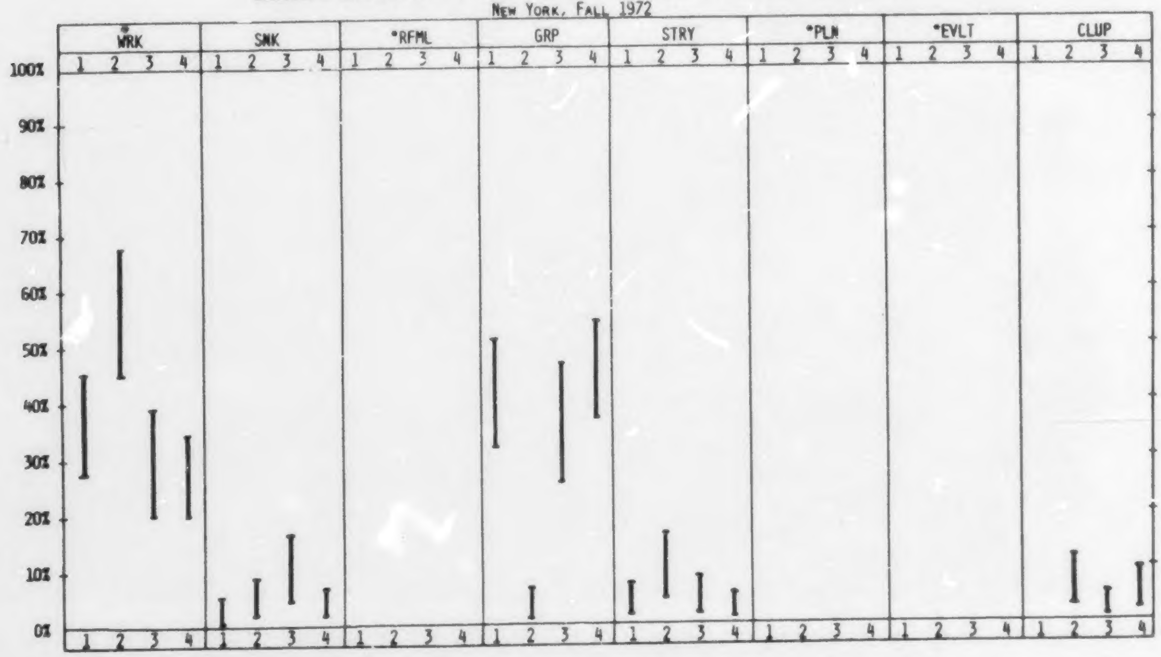
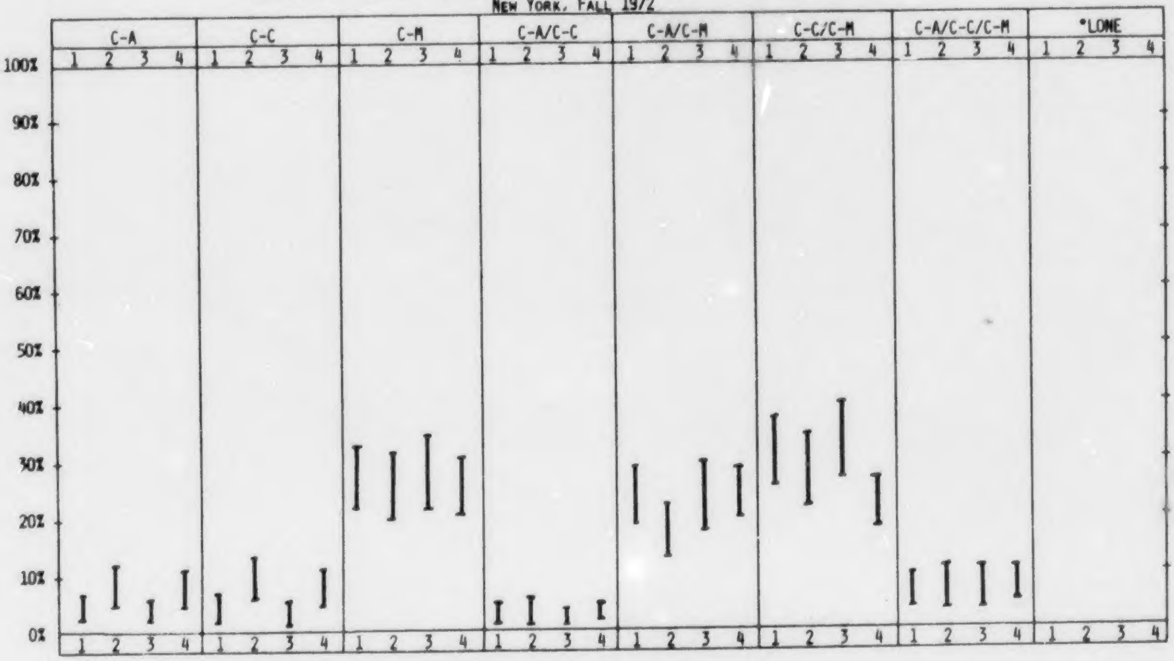


FIGURE 59

GOODMAN'S CONFIDENCE INTERVALS OF INTERACTION TYPES FOR FIRST GRADE CLASSES

NEW YORK, FALL 1972



Fall Comparisons of the Third Grade Classes in New York

Classes 1 and 2 differed in only one respect--children in class 2 were more often in groups containing the entire class (see Figures 60-68). Classes 3 and 4 also were similar to each other and differed only with respect to the size of the group. Class 3 children were more often in groups containing the entire class and were less often in groups containing from two to five students.

Classes 1 and 2 differed from class 3 in the amount of child autonomy and teacher direction and in the amount of time spent in child-adult/child-material interactions. Children in classes 1 and 2 were more often involved in teacher-directed activities and less often involved in activities of their own choice, were more often in groups containing more than five students and less often in groups containing the entire class and spent less time in child-adult/child-material interactions. In addition, class 2 students used object materials more often than class 3 students.

Classes 1 and 2 differed from class 4 in a similar manner. Children in classes 1 and 2, when compared to class 4 students, were more often in groups containing more than five students and less often in groups consisting of the entire class and spent more of their day in teacher-directed activities and a smaller part of their day in self-selected activities. In addition, class 2 children were less often in groups containing from two to five students than class 4 children.

Classes 1 and 2 appeared to be characterized by teacher direction and large groups (5+), whereas classes 3 and 4 were characterized by child autonomy and entire class groups.

Class 4 was not rated by the curriculum assistants. Of the three remaining classes class 3 was rated as highest in terms of implementation and class 1 was rated the lowest. The children in the higher-rated class, compared to the children in the lower-rated class, were more often in groups containing the entire class, spent a larger part of their day in activities of their choice and a smaller part in activities that were structured by the teacher. They also interacted more frequently with both adults and materials.

Figure 60
Goodman's Confidence Intervals of Category 1 Items for Third Grade Classes
New York, Fall 1972

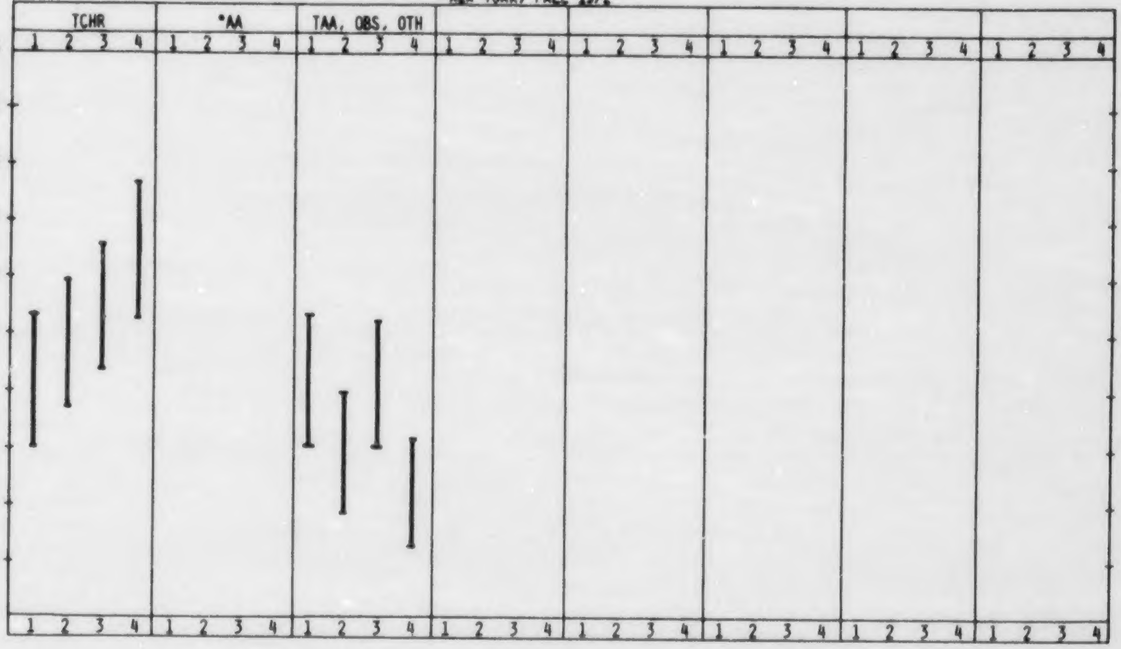


Figure 61
Goodman's Confidence Intervals of Category 4 Items for Third Grade Classes
New York, Fall 1972

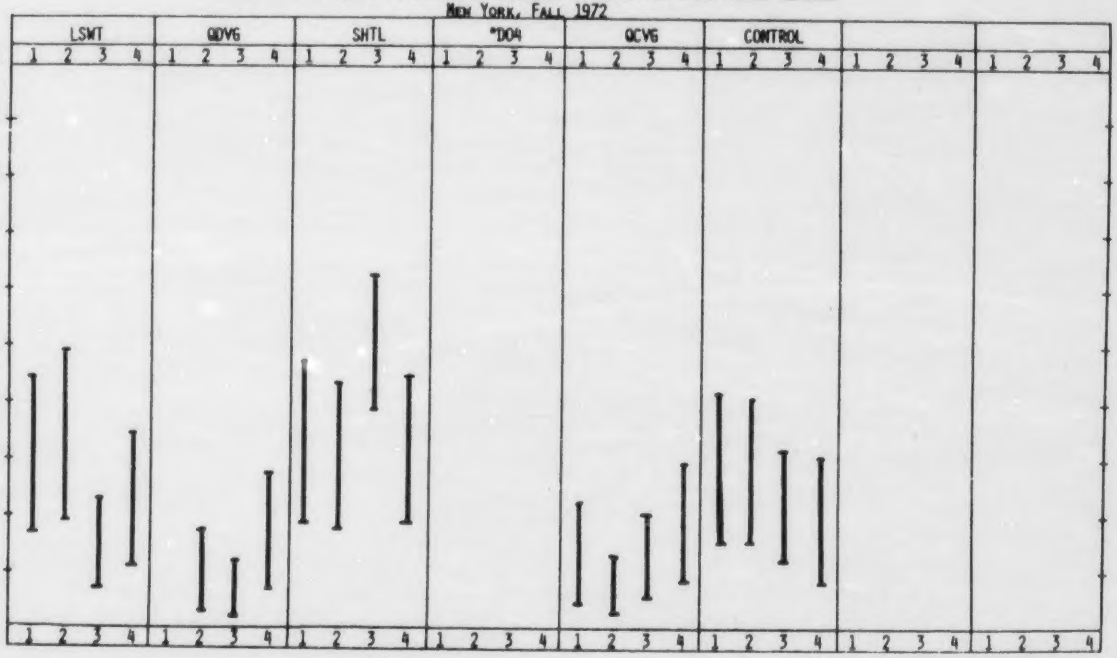


Figure 62
Goodman's Confidence Intervals of Category 5 Items for Third Grade Classes
New York, Fall 1972

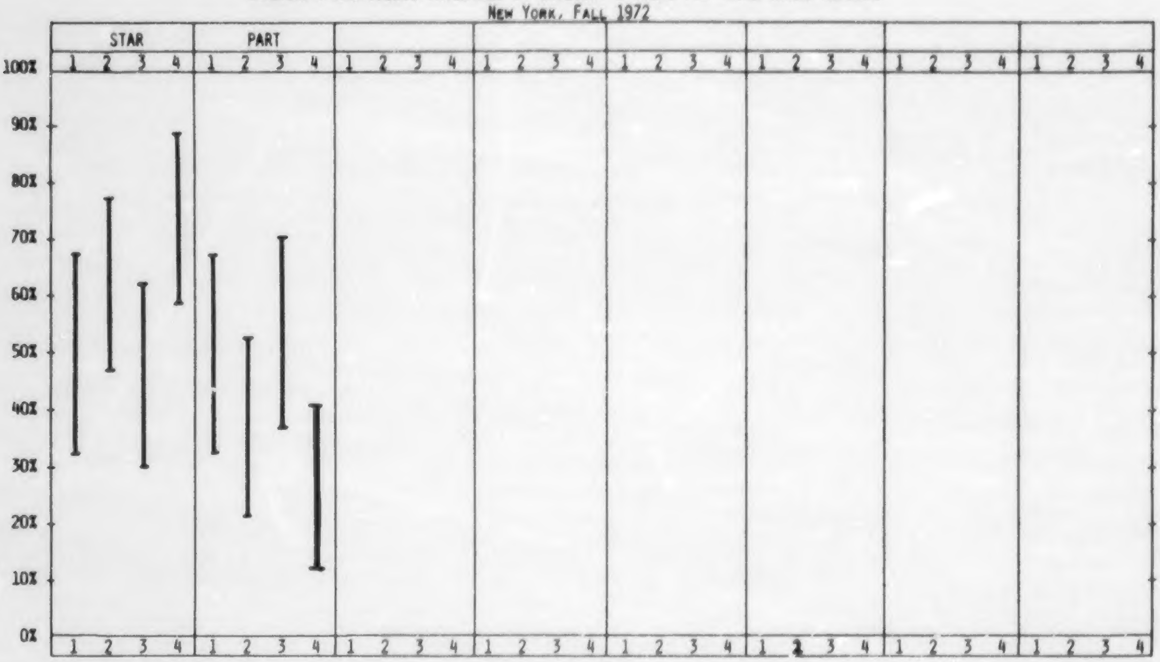


Figure 63
Goodman's Confidence Intervals of Category 6 Items for Third Grade Classes
New York, Fall 1972

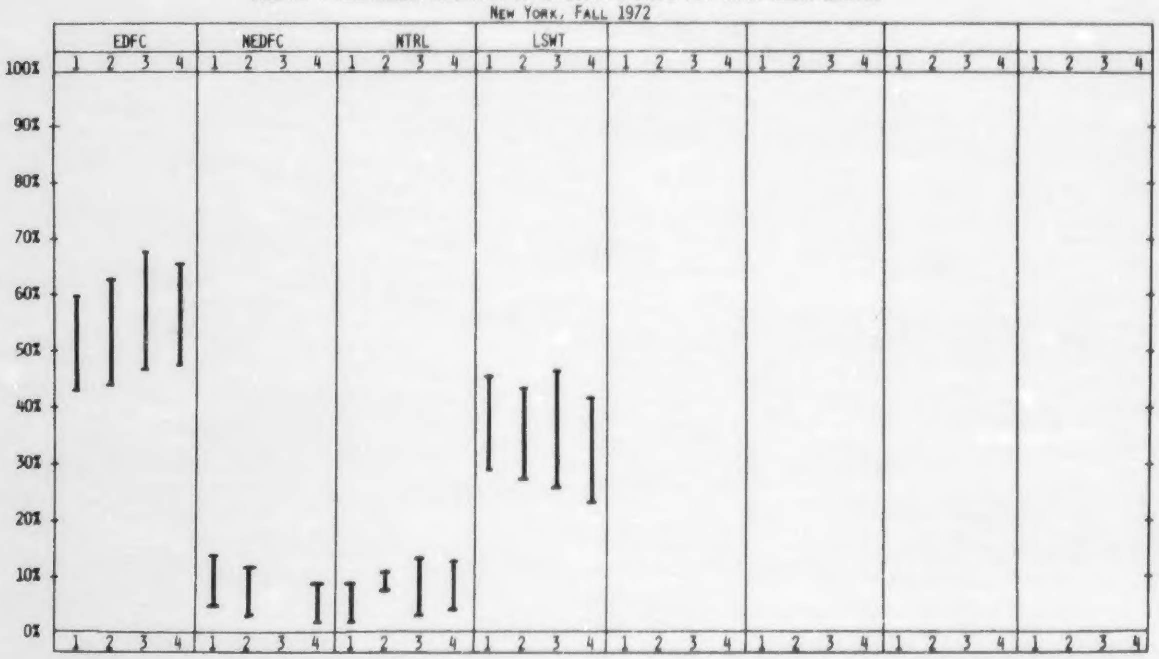


Figure 64
Goodman's Confidence Intervals of Category 7 Items for Third Grade Classes
New York, Fall 1972

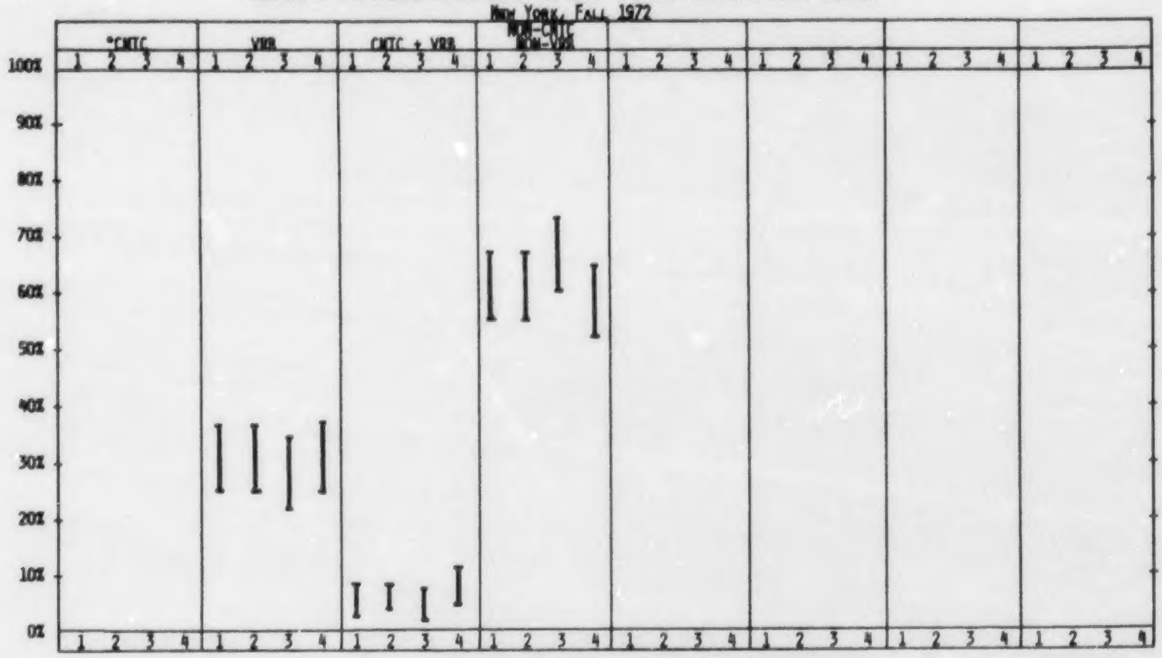


Figure 65
Goodman's Confidence Intervals of Category 9 Items for Third Grade
New York, Fall 1972

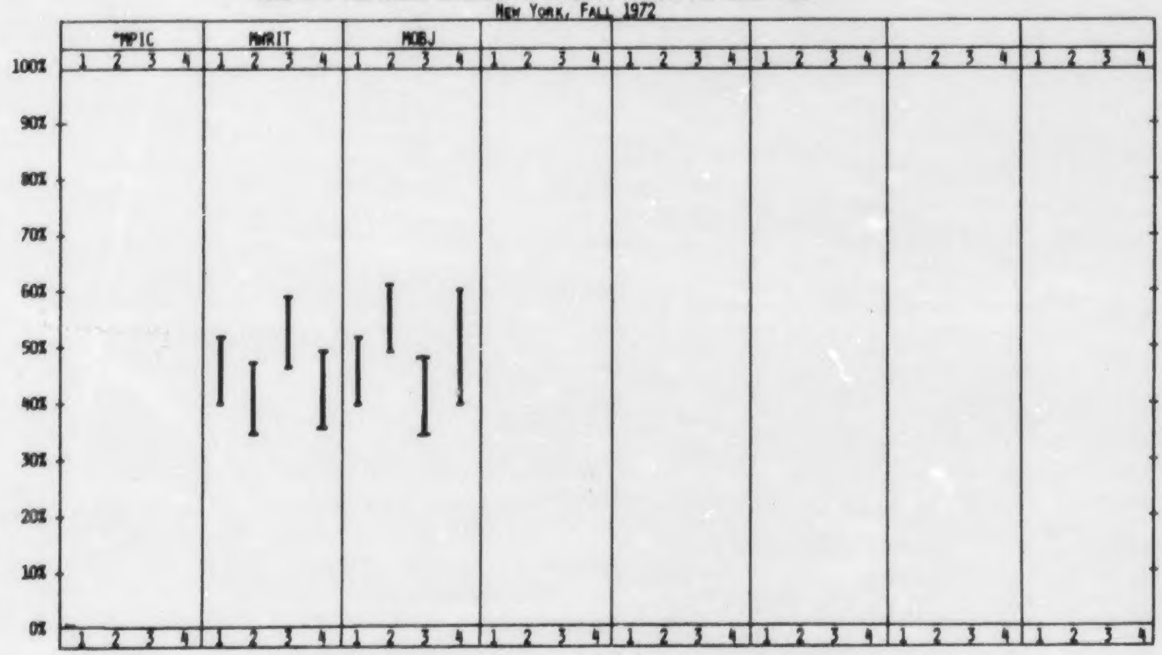


Figure 66

Goodman's Confidence Intervals of Category 12 Items for Third Grade Classes

New York, Fall 1972

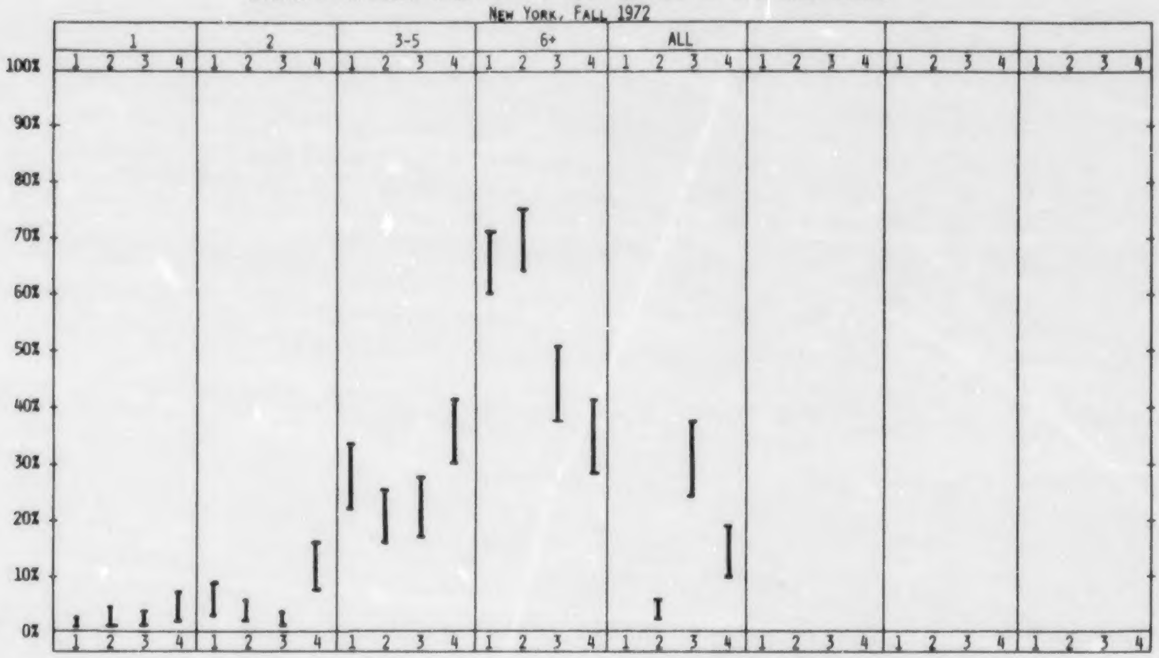


Figure 67

Goodman's Confidence Intervals of Category 15 Items for Third Grade Classes

New York, Fall 1972

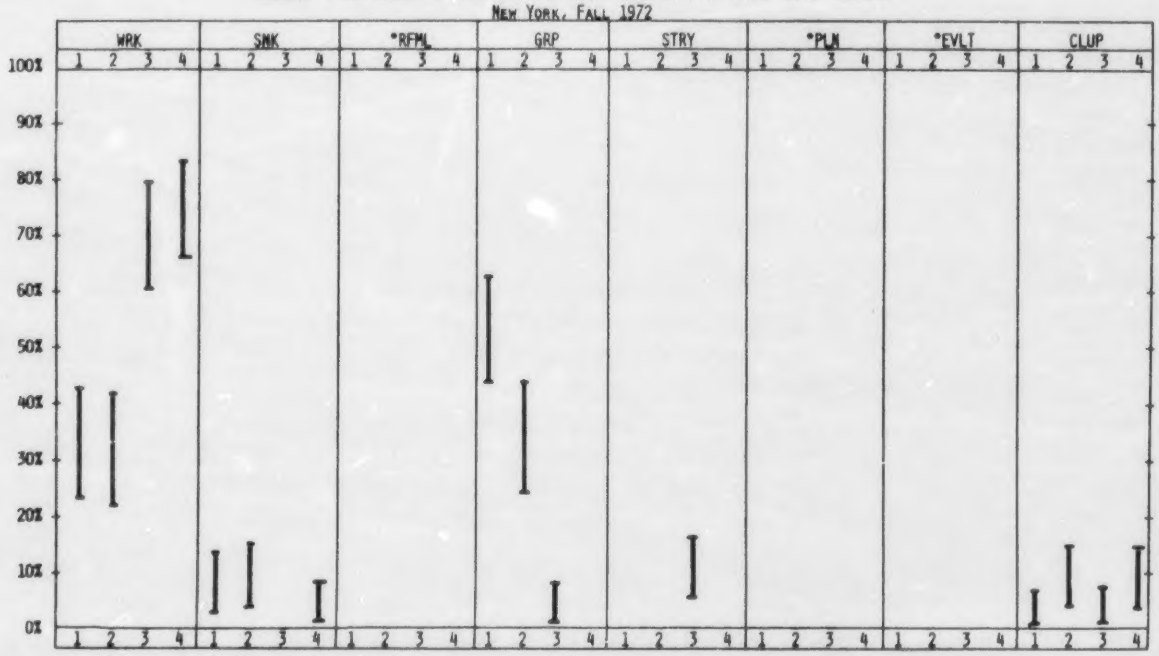
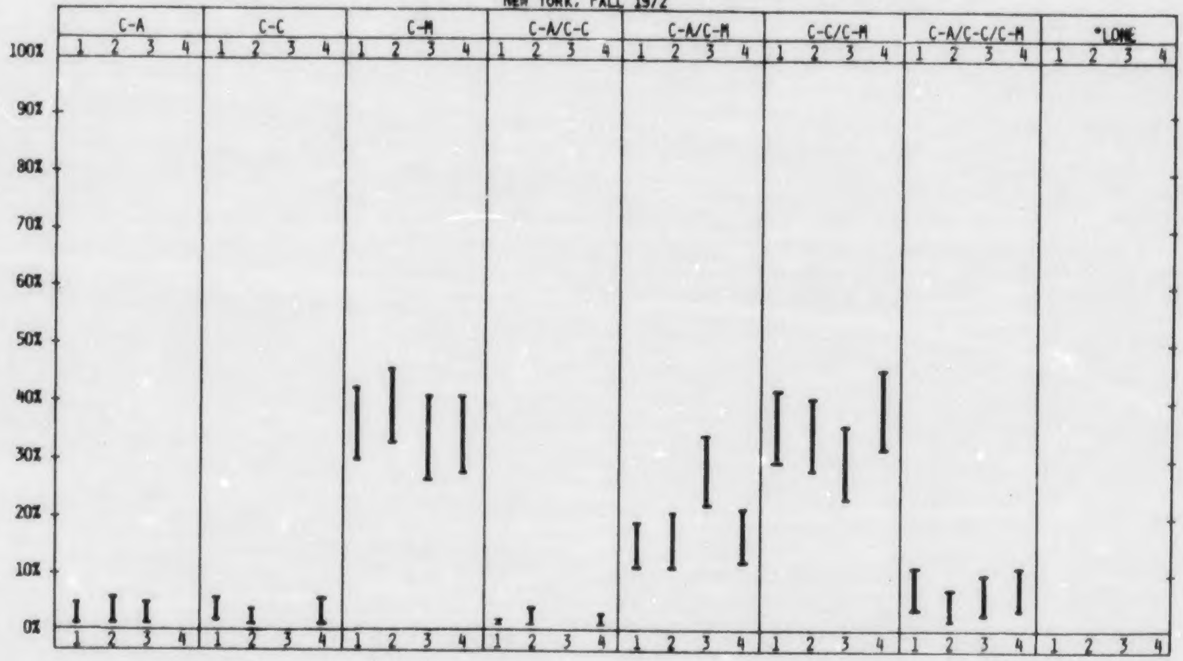


Figure 68

Goodman's Confidence Intervals of Interaction Types for Third Grade Classes

New York, Fall 1972



Fall Comparisons of the First Grades in All Centers

The comparisons of the first grades at the four centers indicated that Greeley looked different from Trinidad, New York and Florida (see Figures 69-77). Greeley first graders compared to other first graders, spent more of their day in teacher-directed activities and less of it in activities of their choice, were more often in groups containing more than six students and less often in groups containing the entire class. They also used fewer object materials than New York or Florida first grade students and were less often in groups of three to five students than Trinidad and Florida students.

Trinidad, New York and Florida students were similar in the amount of time they spent in teacher-directed and child-selected activities but differed in other respects.

Trinidad students were more often involved in child-adult/child-material interactions than Greeley and New York students and were more involved in child-adult interactions than students in New York and Florida. They were also more often in large groups of more than five students than students in Greeley, New York and Florida and used fewer object materials than New York and Florida students. Compared to Greeley students, Trinidad first graders were more often in entire class groups.

Florida students were characterized by individual attention and small groups of three to five students. Compared to Greeley and Trinidad students they were more frequently in groups containing the entire class. Object materials were also used more often in this class than in Trinidad or Greeley.

New York students, compared to other students, were more often in groups containing the entire class and were less frequently involved in child-material interactions. They also used more object materials than Trinidad or Greeley students and were more often in groups of more than five than Florida students. Many of the interaction types that involve children were seen more frequently in New York than in other centers. Child-child/child-material interactions occurred more often in New York than in other centers, child-adult/child-child interactions occurred more frequently in this center than in Florida or Trinidad, and child-child interaction occurred more frequently in New York than in Florida.

Figure 69

Goodman's Confidence Intervals of Category 1 Items for First Grade Classes

All Centers, Fall 1972

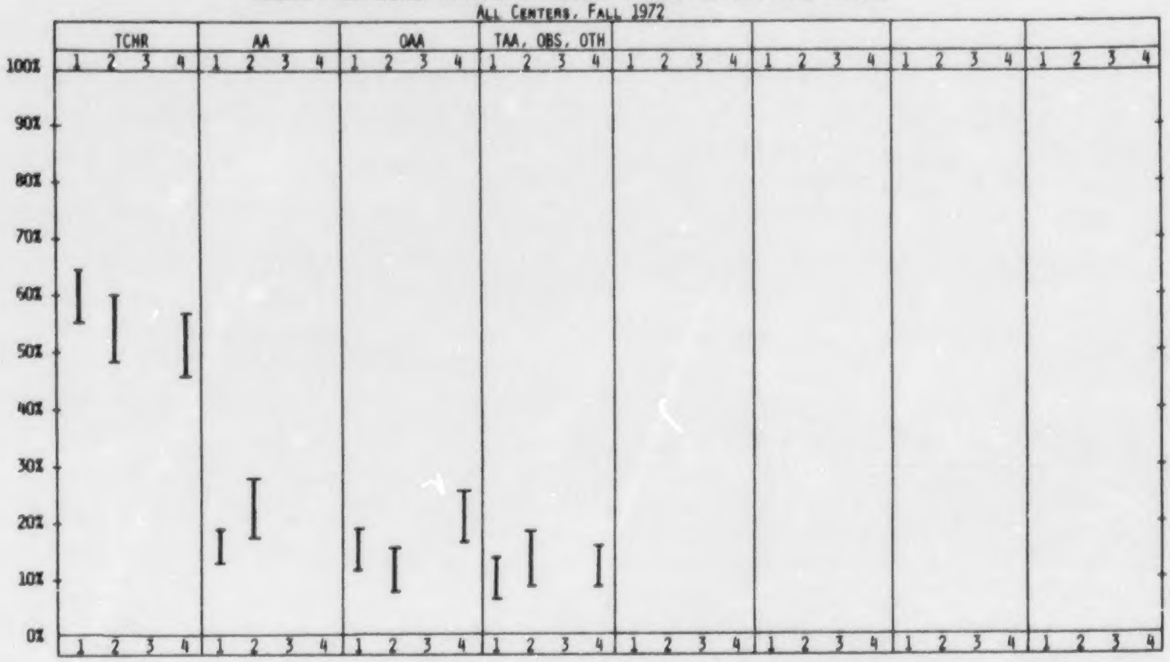


Figure 70

Goodman's Confidence Intervals of Category 4 Items for First Grade Classes

All Centers, Fall 1972

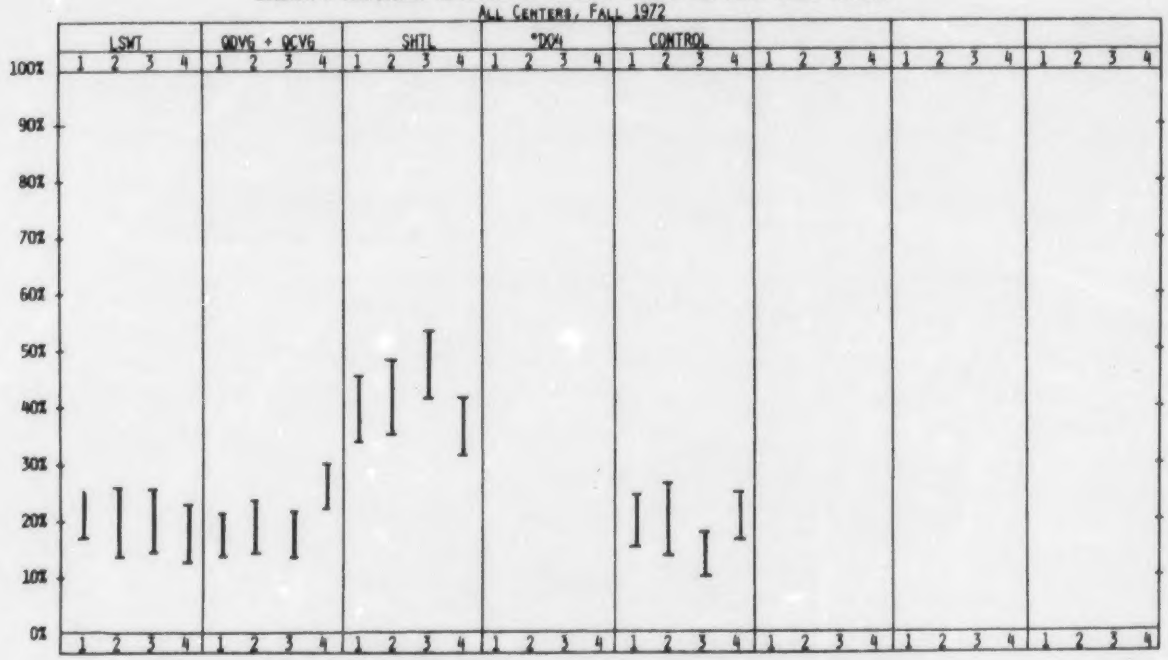


Figure 71

Goodman's Confidence Intervals of Category 5 Items for First Grade Classes

All Centers, Fall 1972

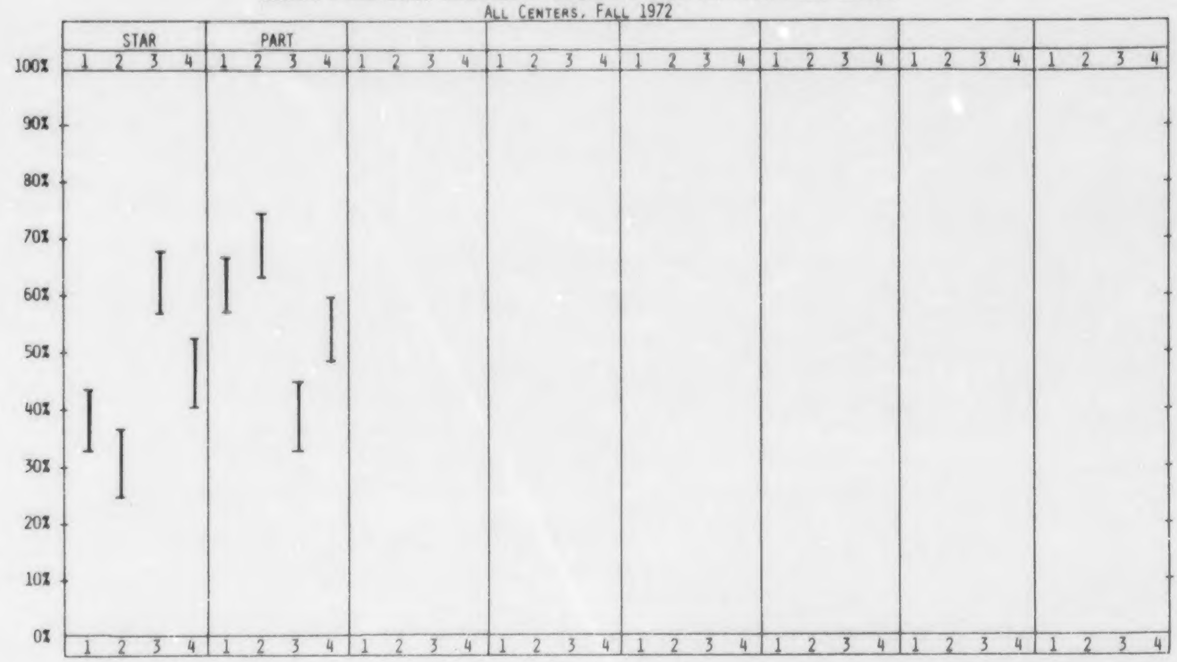


Figure 72

Goodman's Confidence Intervals of Category 6 Items for First Grade Classes

All Centers, Fall 1972

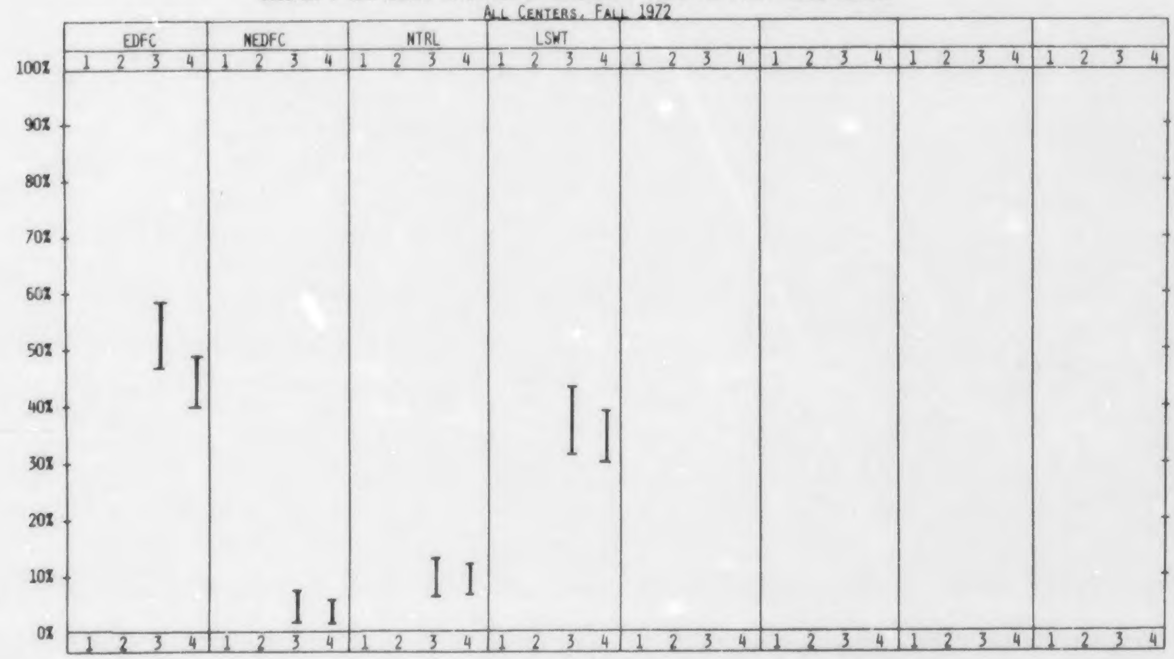


FIGURE 73

GOODMAN'S CONFIDENCE INTERVALS OF CATEGORY 7 ITEMS FOR FIRST GRADE CLASSES
ALL CENTERS, FALL 1972

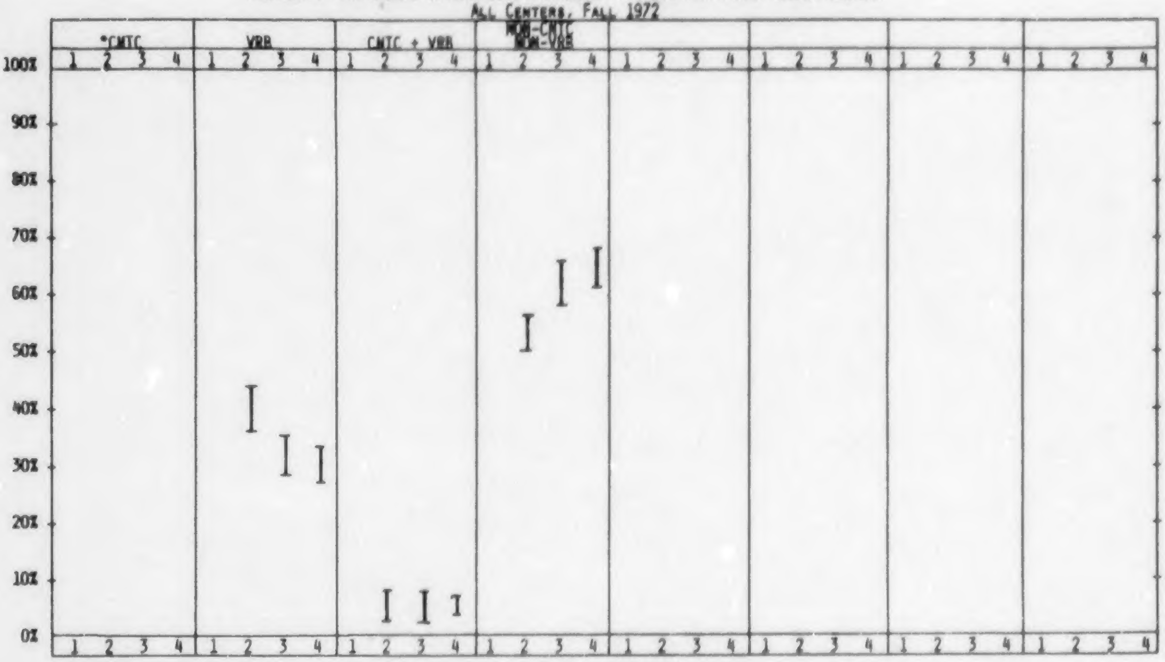


FIGURE 74

GOODMAN'S CONFIDENCE INTERVALS OF CATEGORY 9 ITEMS FOR FIRST GRADE CLASSES
ALL CENTERS, FALL 1972

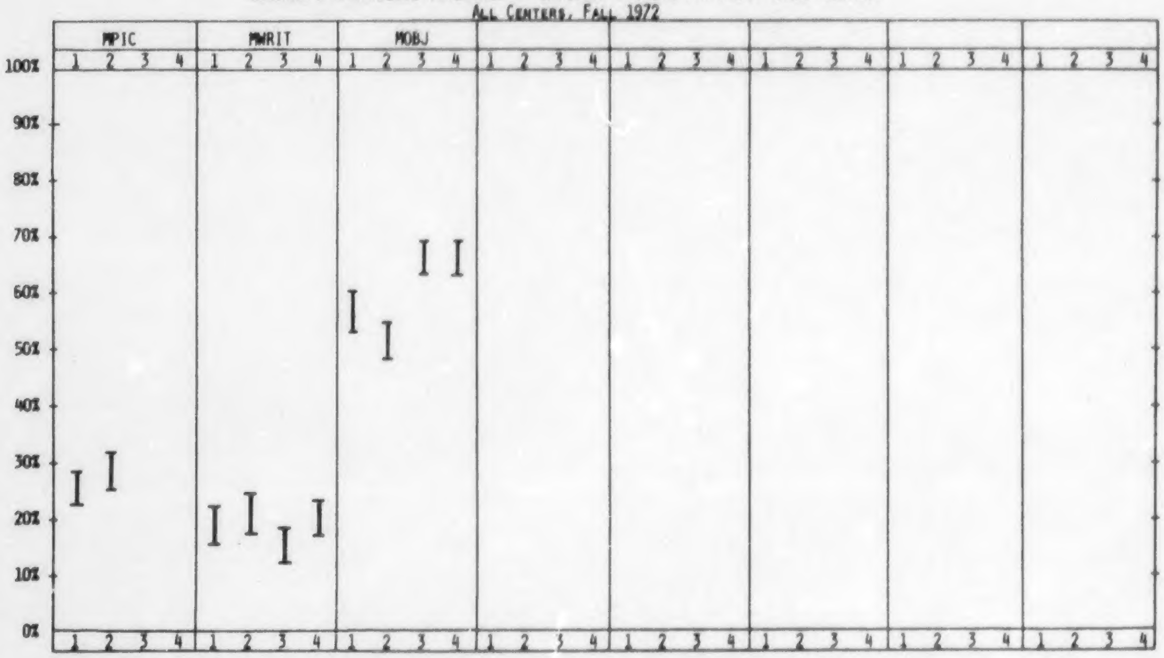


Figure 75

Goodman's Confidence Intervals of Category 12 Items for First Grade Classes

All Centers, Fall 1972

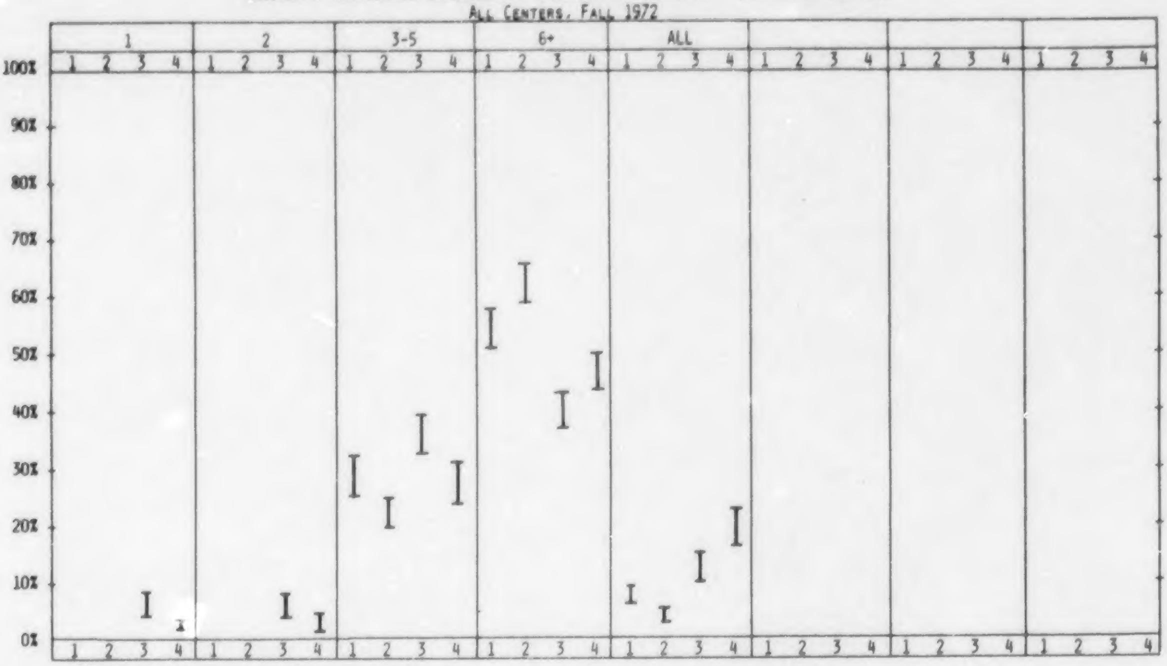


Figure 76

Goodman's Confidence Intervals of Category 15 Items for First Grade Classes

All Centers, Fall 1972

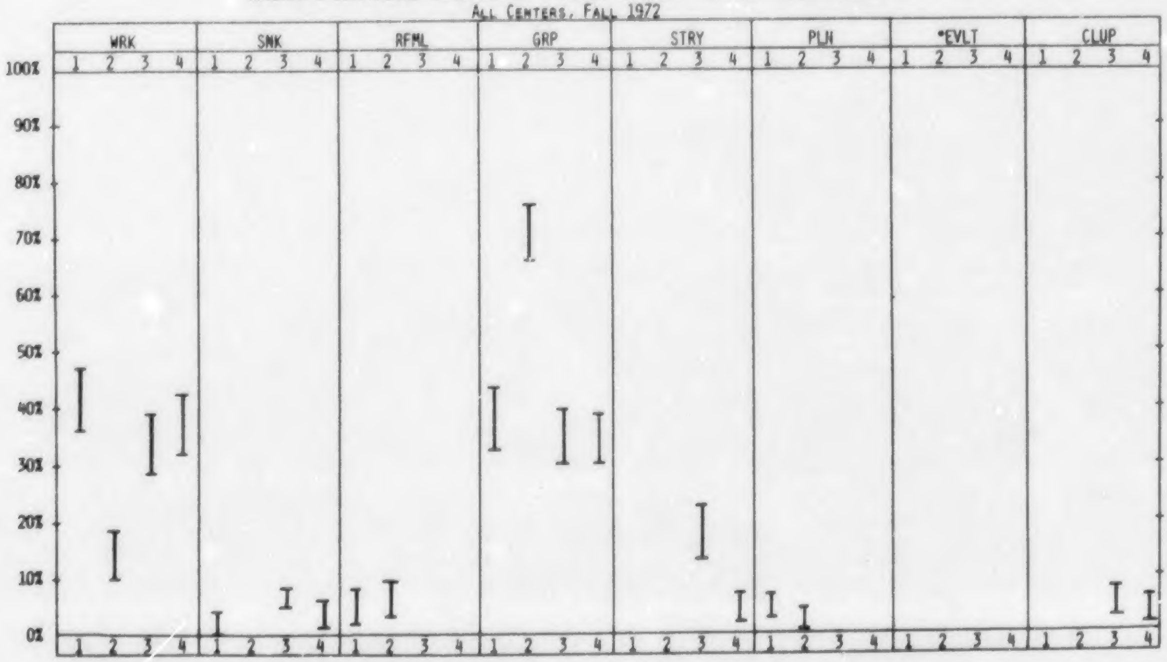
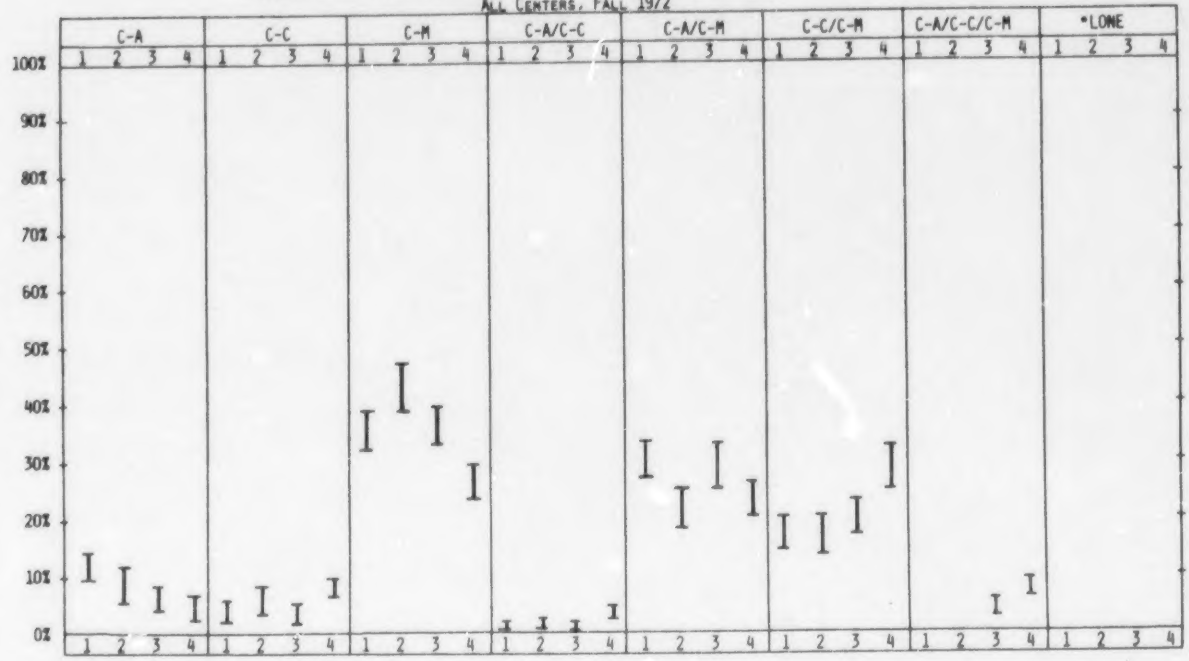


Figure 77

Goodman's Confidence Intervals of Interaction Types for First Grade Classes

All Centers, Fall 1972



Fall Comparisons of the Third Grades in All Centers

The across center comparisons indicated that each center had at least one variable which made it unique from all other centers (see Figures 78-86). Trinidad third graders compared to third graders in other centers were more often in teacher-structured activities and less often in activities of their choice and used written materials less often. Child-adult interactions occurred more frequently in Trinidad than in Florida, Greeley or New York and child-child/child-material interactions occurred relatively less frequently. Compared to Florida and Greeley students they were more often in groups containing more than five students. They also interacted more often with both adults and materials than Greeley or New York students, and interacted more often with peers than New York students.

Greeley students were more autonomous. Compared to other third graders they were more often in self-selected activities, less often in teacher-structured activities and less often in groups containing the entire class. The children in this center were also more often engaged in child-material interactions than other students and were more often involved in child-adult interactions than Florida and New York students.

New York and Florida students spent similar amounts of time in both teacher-structured and child-structured activities but differed in the kind of material they used and in their group size. Compared to students in other centers, New York students used more written materials, were more often in groups containing more than five students and less often in groups containing three to five students and interacted more frequently with both children and materials.

Florida third graders differed consistently from the other third graders in that they were more often in groups containing the entire class. They also interacted more frequently with both adults and materials than New York students.

Each center was unique in some respect. Trinidad third grade was characterized by teacher-directiveness, Greeley by child autonomy, Florida by large groups and New York by writing materials and child-child/child-material interactions.

Figure 78

Goodman's Confidence Intervals of Category 1 Items for Third Grade Classes
All Centers, Fall 1972

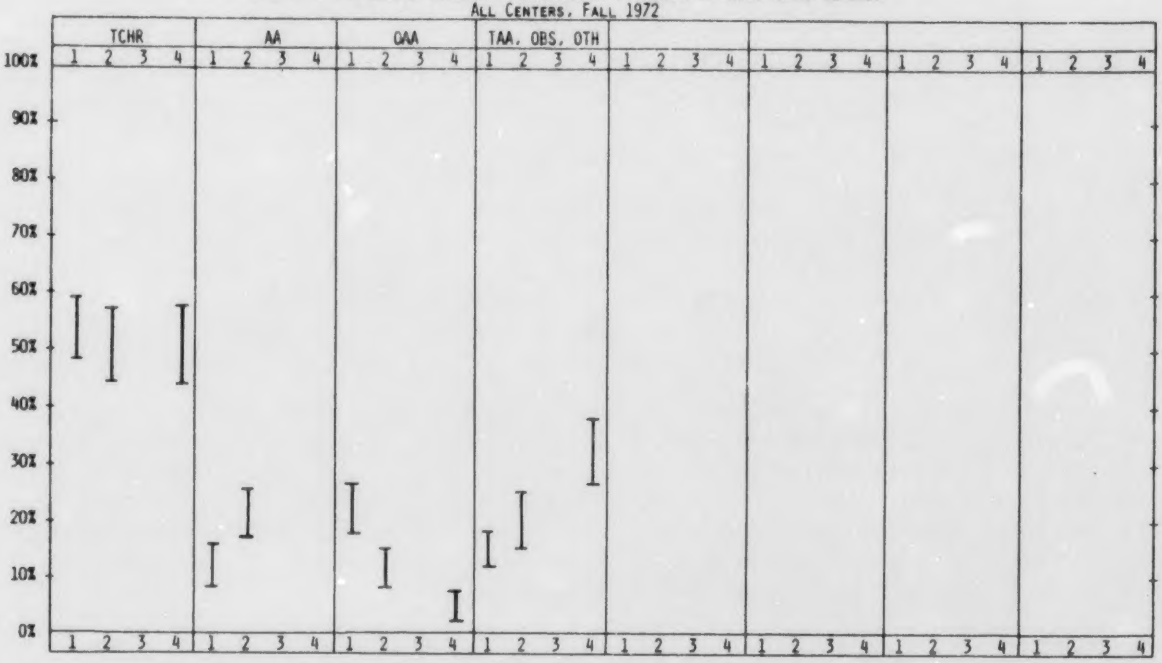


Figure 79

Goodman's Confidence Intervals of Category 4 Items for Third Grade Classes
All Centers, Fall 1972

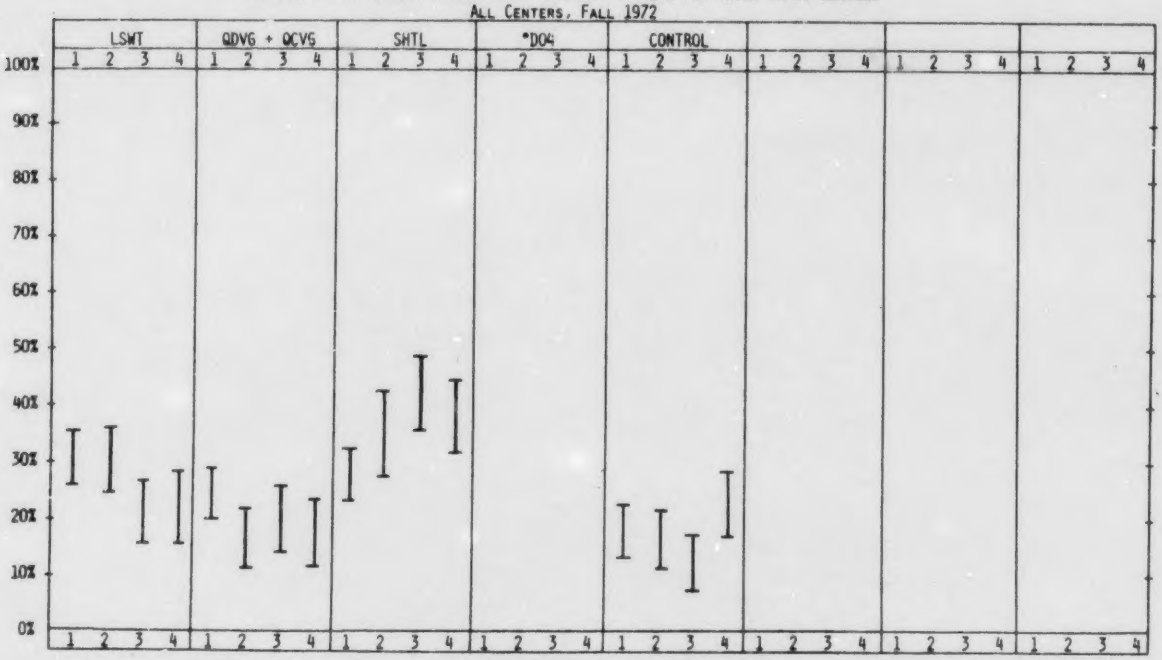


Figure 80
Goodman's Confidence Intervals of Category 5 Items for Third Grade Classes
All Centers, Fall 1972

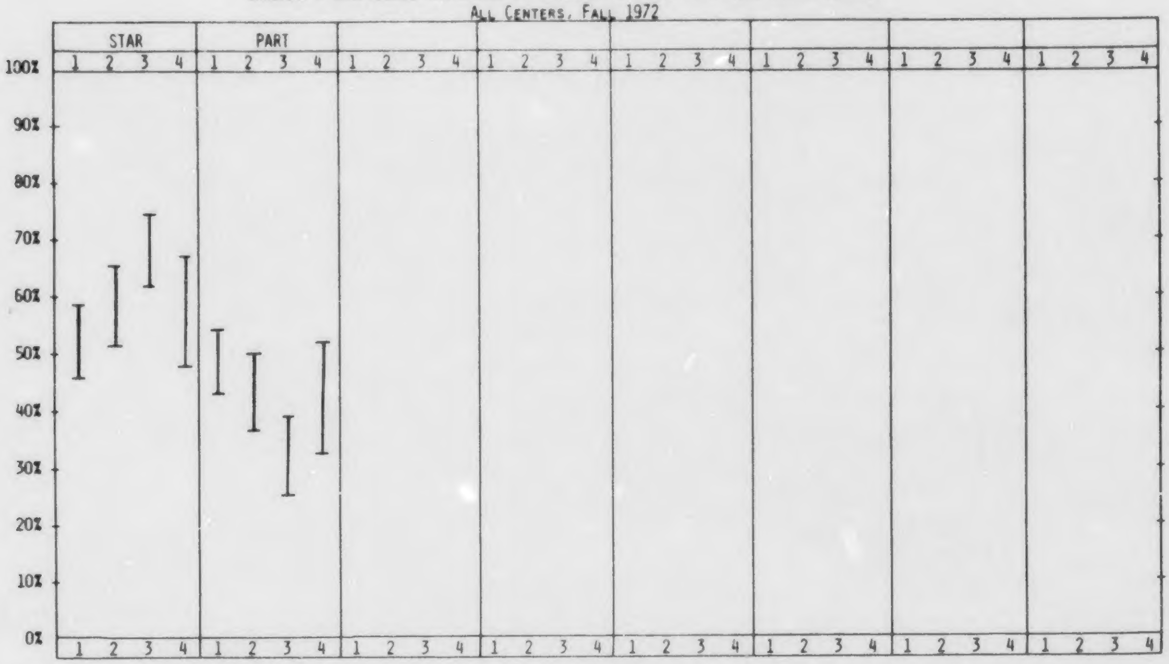


Figure 81
Goodman's Confidence Intervals of Category 6 Items for Third Grade Classes
All Centers, Fall 1972

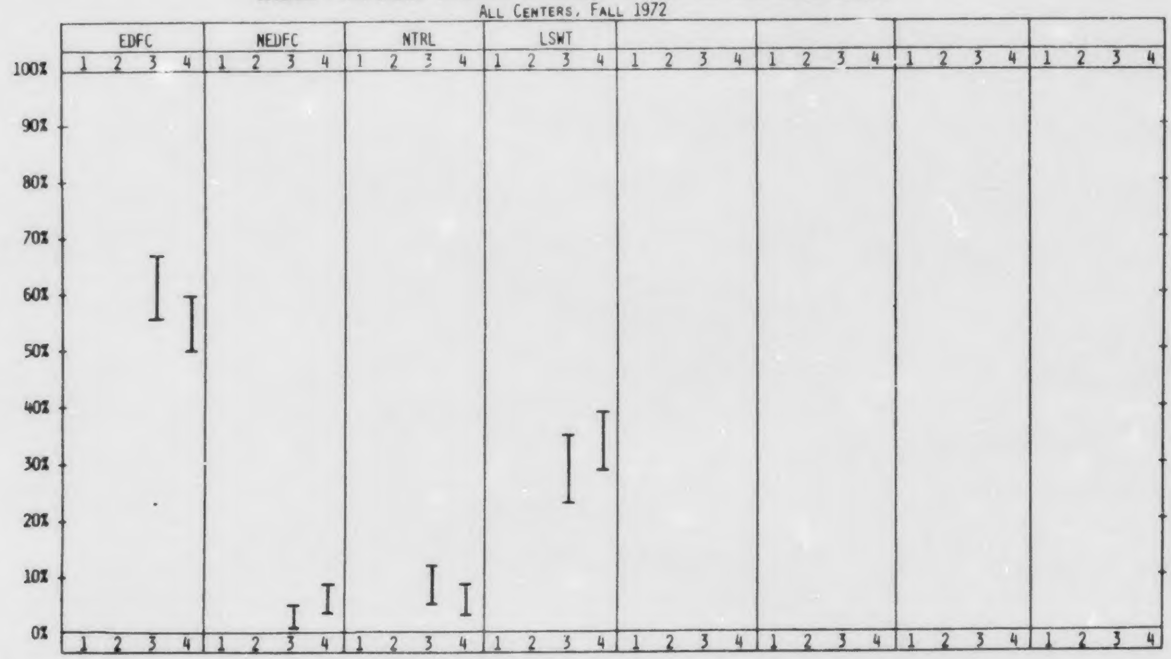


Figure 82
Goodman's Confidence Intervals of Category 7 Items for Third Grade Classes
All Centers, Fall 1972

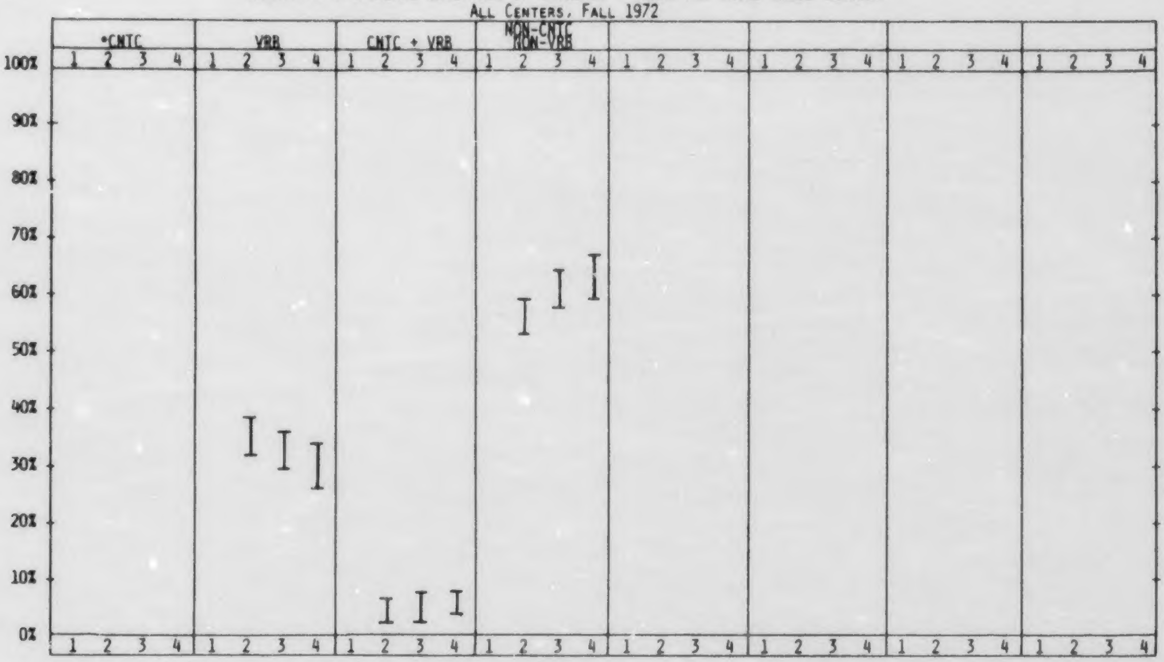


Figure 83
Goodman's Confidence Intervals of Category 9 Items for Third Grade Classes
All Centers, Fall 1972

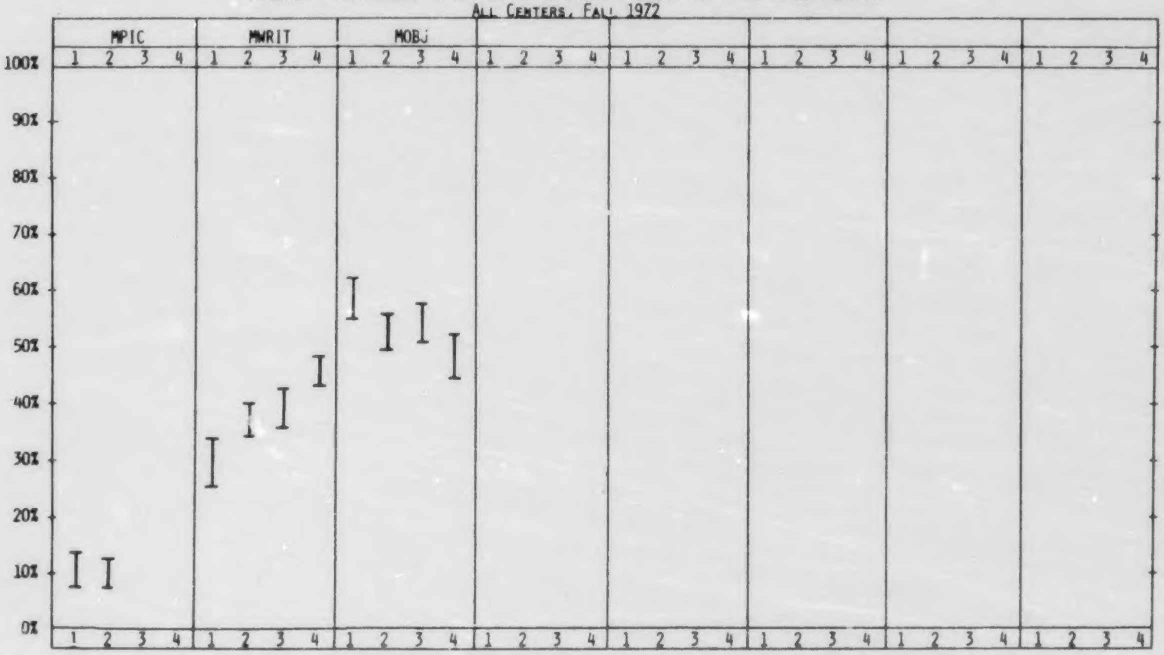


Figure 84

Goodman's Confidence Intervals of Category 12 Items for Third Grade Classes

All Centers, Fall 1972

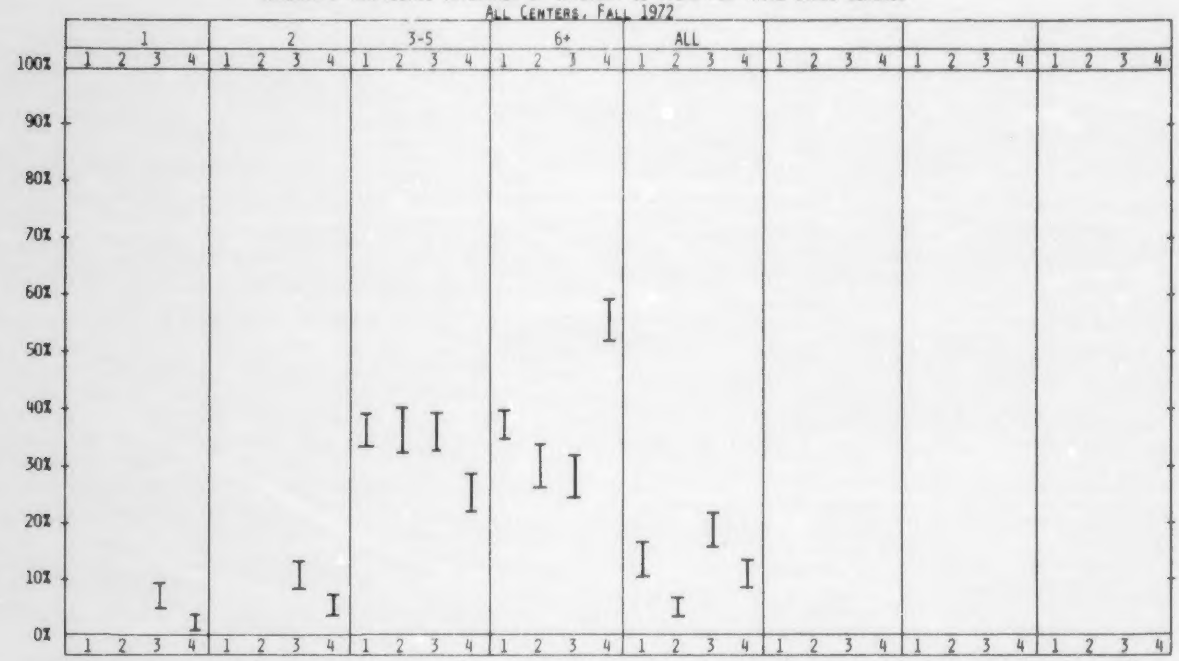


Figure 85

Goodman's Confidence Intervals of Category 15 Items for Third Grade Classes

All Centers, Fall 1972

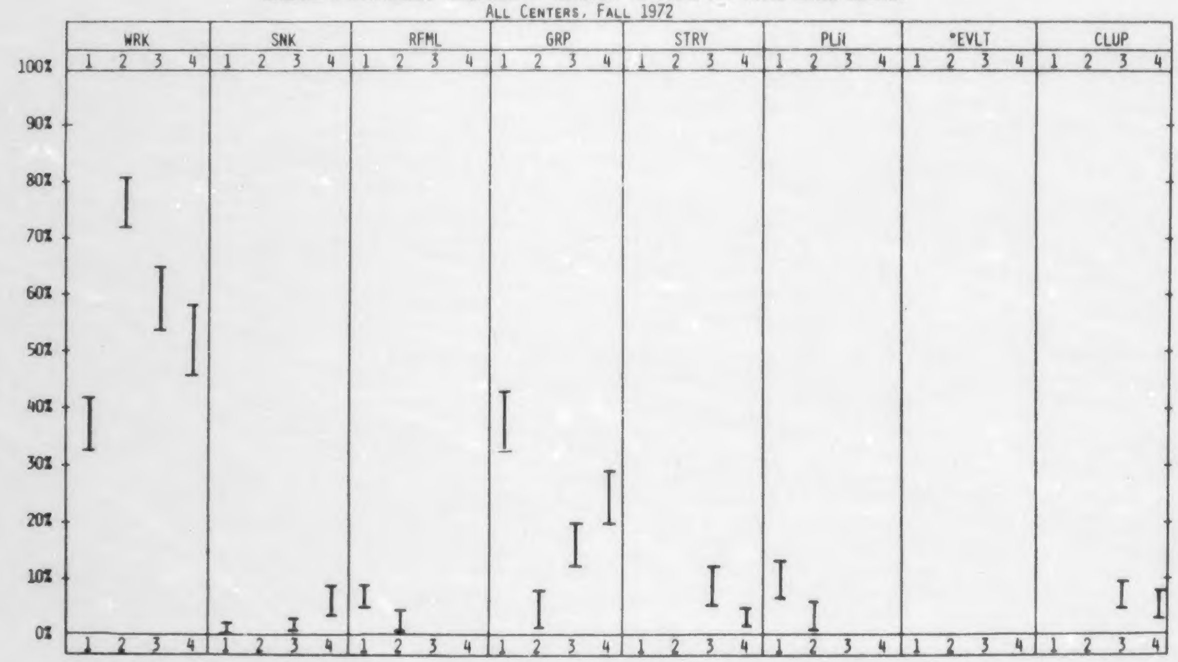
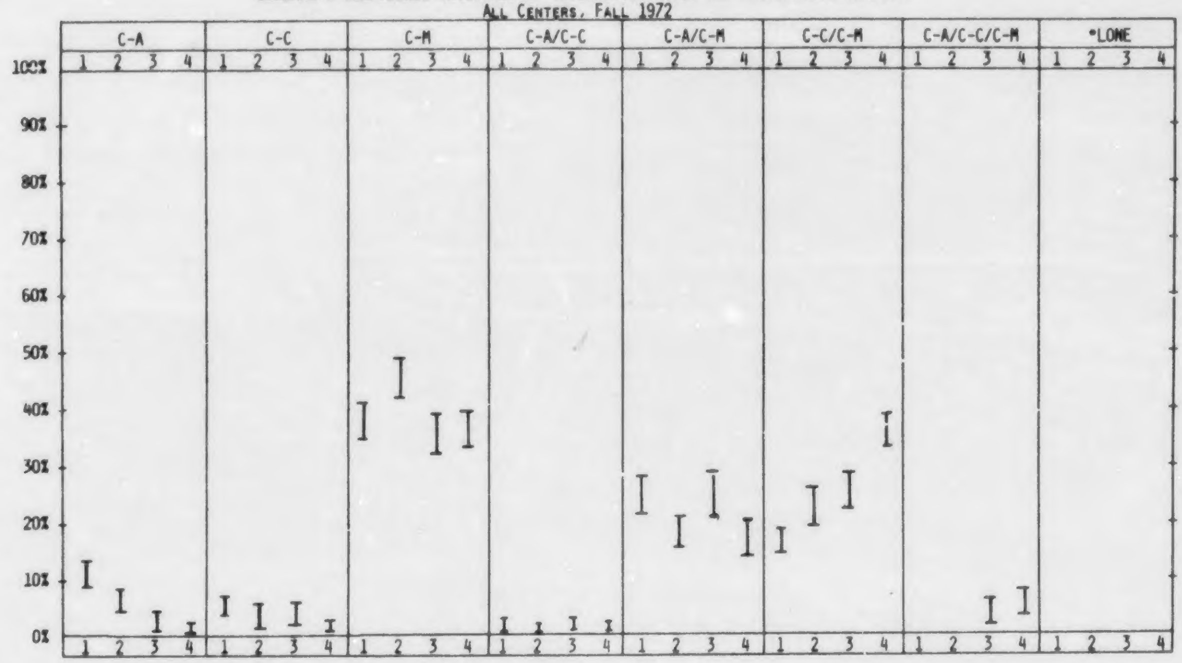


FIGURE 86

GOODMAN'S CONFIDENCE INTERVALS OF INTERACTION TYPES FOR THIRD GRADE CLASSES

ALL CENTERS, FALL 1972



Fall Similarities in the Well Implemented Classes and in the Least Well Implemented Classes

The comparisons made between the best implemented class and the least well implemented class identified those variables which differentiated the two extremes. Those variables, however, may be peculiar to a center, to a grade level or to a curriculum assistant's understanding of the matrix. It is, therefore, necessary to ask the question, "Do specific ACI variables differentiate well implemented and poorly implemented classrooms consistently across sites?"

The descriptions of both the well implemented classes and the less well implemented classes were compared across sites within grade level to find out whether there were any characteristics of either the higher-rated classes or the lower-rated classes common to all sites. If there were common characteristics the first grade characteristics were compared with the third grade characteristics to see if they differed as a function of grade level.

The variables which distinguished the first grade well implemented classes from the less well implemented classes were not consistent across all four sites. In other words, the variables that described the best implemented class in Greeley were not the same variables that described the best implemented classes in Trinidad, Florida and New York. Three variables, teacher-directiveness, child-autonomy and group size, were common to two centers. The better-rated classes in Trinidad and Florida were characterized by teacher direction and the lower-rated classes were characterized by child autonomy. The lower-rated classes in both Greeley and Florida were characterized by small groups. Other differences between the highest-rated and lowest-rated classes were unique to each center.

The characteristics which described the highest- and lowest-rated classes were more comparable across centers for the third grade classes. Group size, child autonomy and teacher directiveness are descriptive of both the highest- and lowest-rated third grade classes in all four sites. The children in all four of the best-rated classes, except for Greeley, were more often involved in activities of their choice, were less often involved in teacher-directed activities and, except for the New York children, were more often in smaller groups. The children in the lower-rated classes were more often in larger groups, were more often in small group, teacher-structured activities and, with the exception of Greeley children, were less often in activities of their choice. The well implemented classes in both Trinidad and Greeley used more object materials than the less well implemented classes. Other differentiating variables were unique to particular centers.

Since no variables consistently described either the well implemented or the poorly implemented first grade classes, grade level comparisons involving all centers could not be made. Grade level comparisons, however, were made with two centers (Florida and Trinidad). The characteristics common to the best implemented classes and to the least well implemented classes in these two centers did vary as a function of grade. The well implemented first grade classes and less well implemented first grade classes were characterized by teacher-directiveness and child autonomy, respectively. The opposite was true of the third grade classes. The best implemented third grade classes in these two centers were characterized by child autonomy and the least well implemented classes were characterized by teacher-directiveness.

Spring Data Analysis

Spring Comparisons of the First Grade Classes in Trinidad

The three first grade classes did not differ in the amount of child-structured and teacher-structured activities (see Figures 87-96). Class 3 looked different from the other two classes with respect to the amount of individual attention given by adults, the kind of materials used and group size. The children in this class compared to children in the other classes, received more individual attention, used fewer picture materials and were more often in small groups (3-5) and less often in large groups (6-10). They were also more frequently involved in writing activities and in interactions with adults than class 1 students.

Class 1 children initiated interactions with adults less often than children in the other two classes and were more often in groups of three to five students and less often in groups containing more than ten students than class 2 students.

The curriculum assistant did not rate these classes in the spring. Ratings made by the High/Scope field consultant indicated that class 3 was implementing the curriculum the best and that class 1 was implementing it least well. Comparisons of these two classrooms showed that children in the better-rated class were given more individual attention by adults, were more often involved in writing activities, and were more often in small groups of three to five students. The children in the lower-rated class used picture materials more frequently, were more often in larger groups of six to ten students and were more frequently involved in child-adult interactions.

Figure 87

Goodman's Confidence Intervals of Category 1 Items for First Grade Classes
Trinidad, Spring 1973

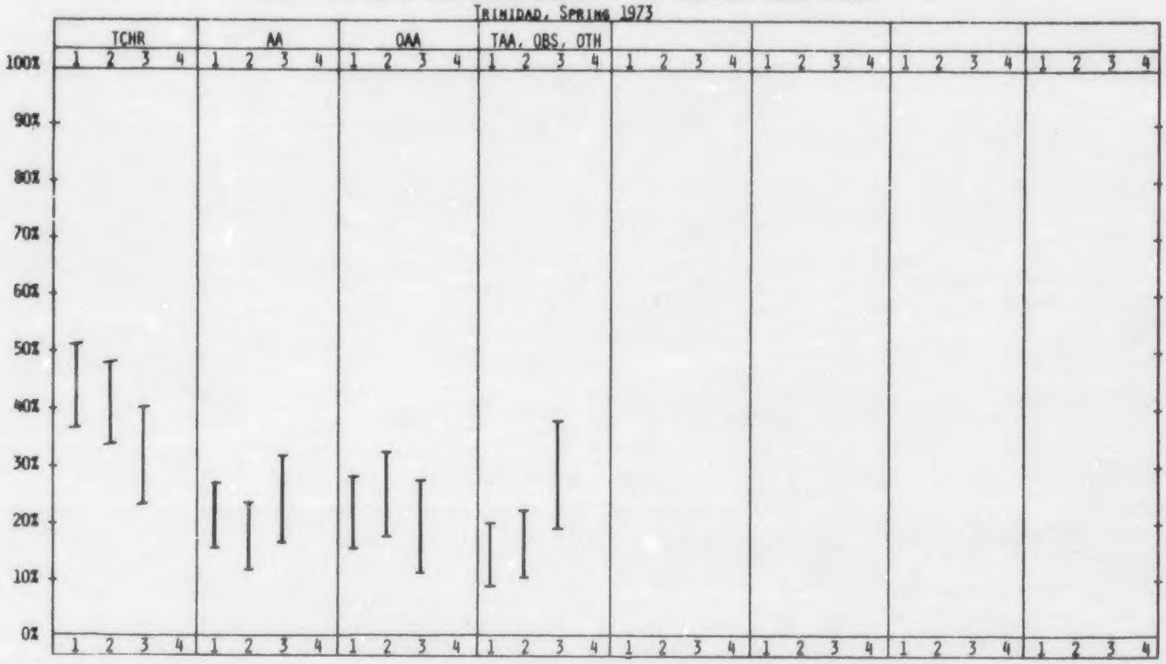


Figure 88

Goodman's Confidence Intervals of Category 2 Items for First Grade Classes
Trinidad, Spring 1973

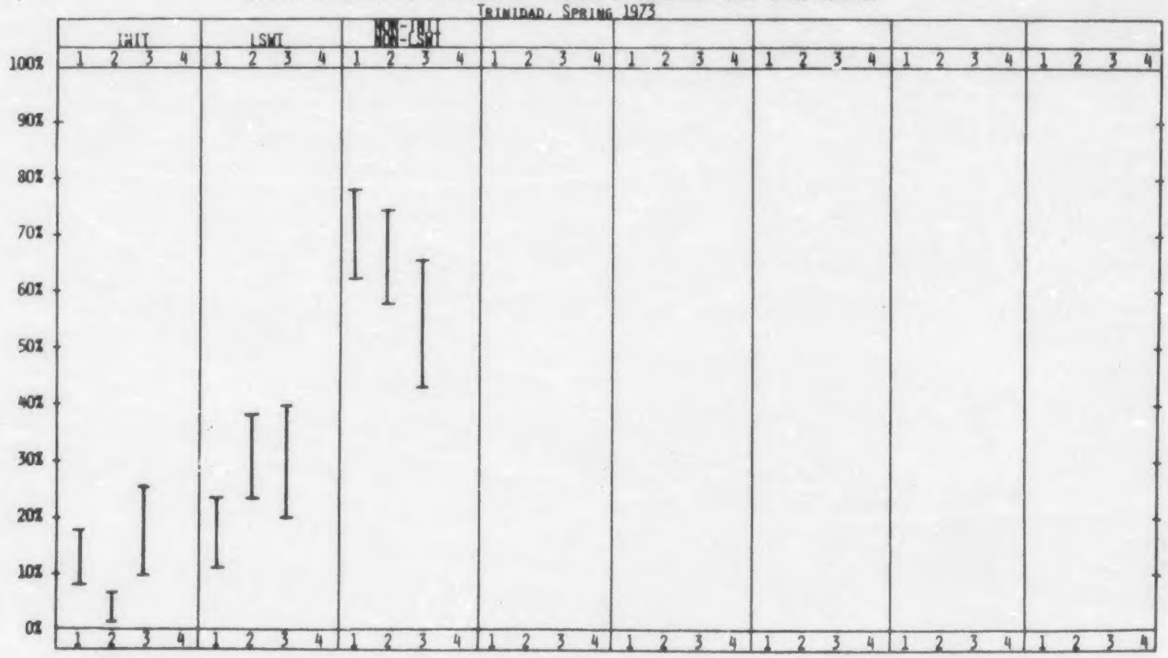


FIGURE 89
GOODMAN'S CONFIDENCE INTERVALS OF CATEGORY 4 ITEMS FOR FIRST GRADE CLASSES
TRINIDAD, SPRING 1973

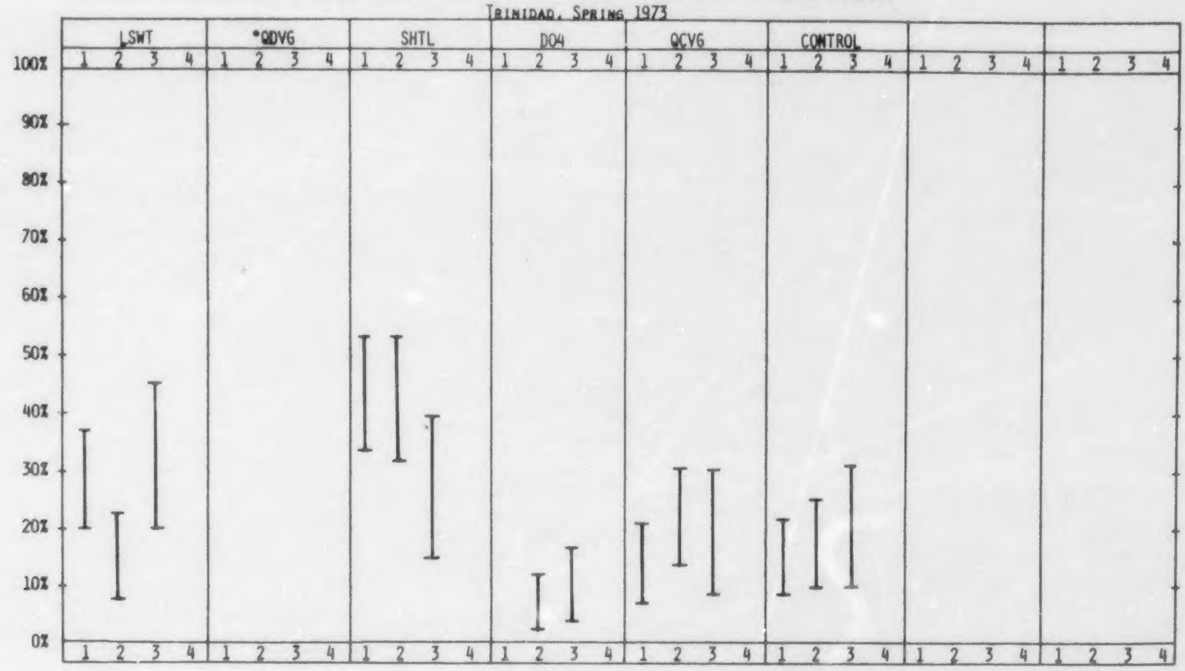


FIGURE 90
GOODMAN'S CONFIDENCE INTERVALS OF CATEGORY 5 ITEMS FOR FIRST GRADE CLASSES
TRINIDAD, SPRING 1973

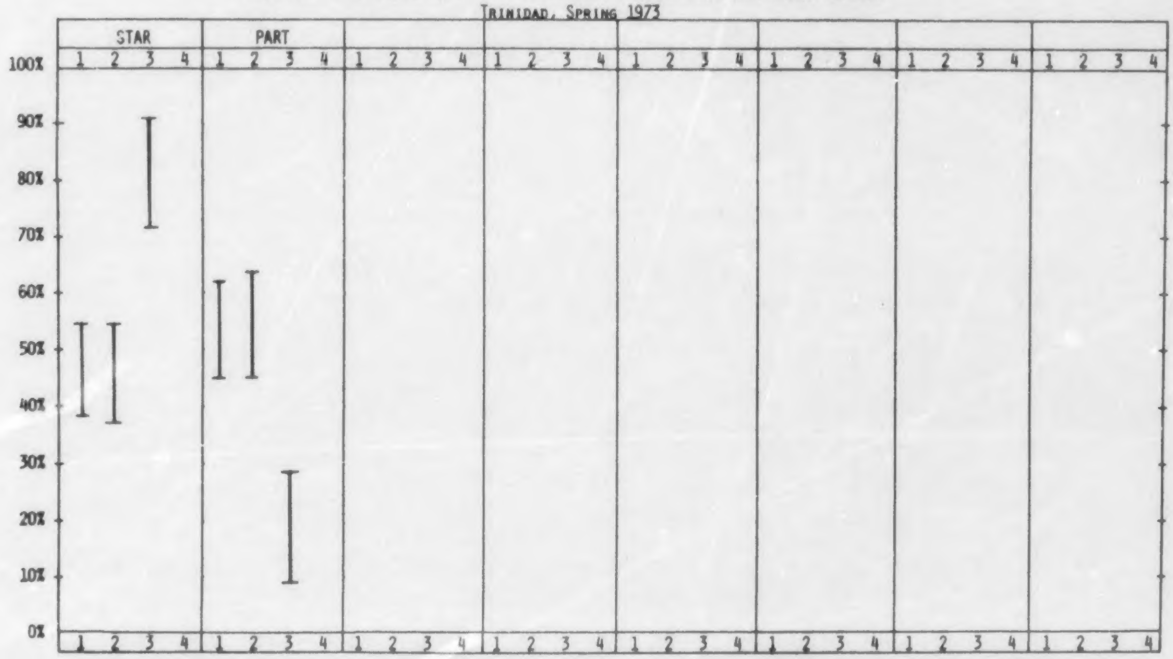


FIGURE 91

GOODMAN'S CONFIDENCE INTERVALS OF CATEGORY 6 ITEMS FOR FIRST GRADE CLASSES

TRINIDAD, SPRING 1973

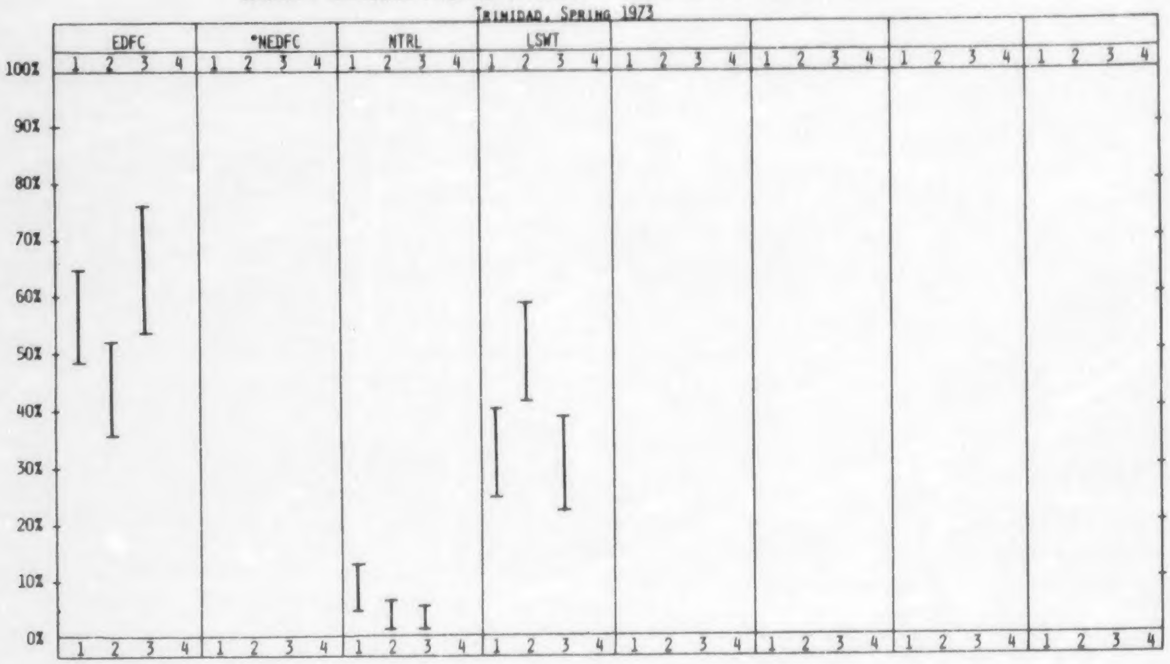


FIGURE 92

GOODMAN'S CONFIDENCE INTERVALS OF CATEGORY 7 ITEMS FOR FIRST GRADE CLASSES

TRINIDAD, SPRING 1973

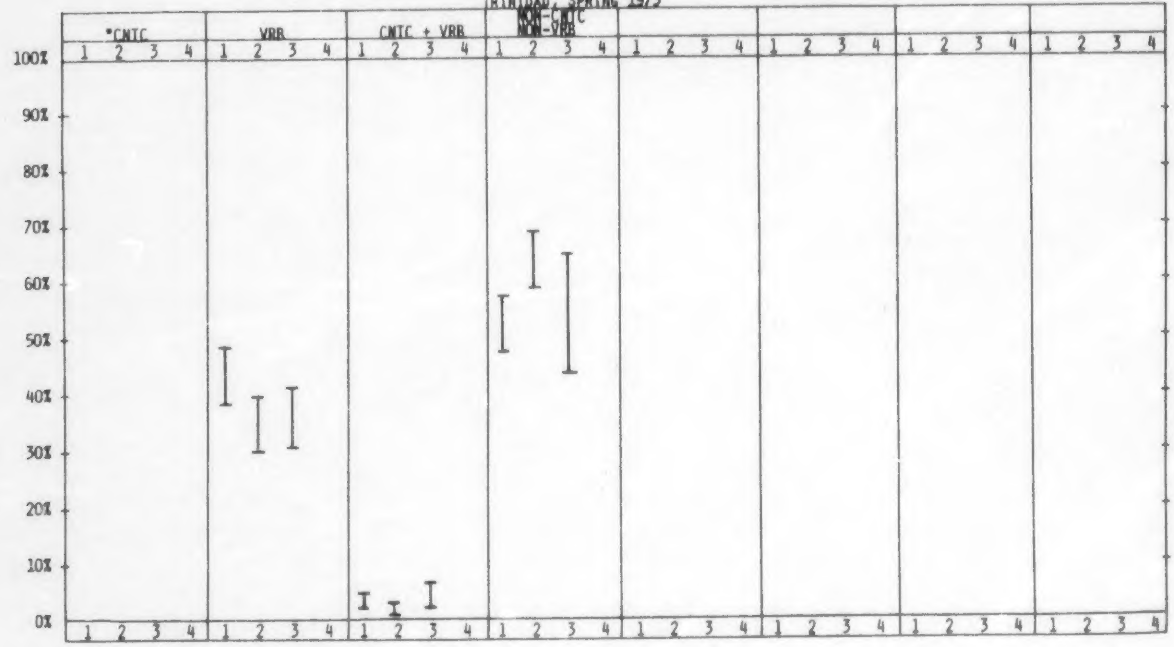


Figure 93

Goodman's Confidence Intervals of Category 9 Items for First Grade Classes

Trinidad, Spring 1973

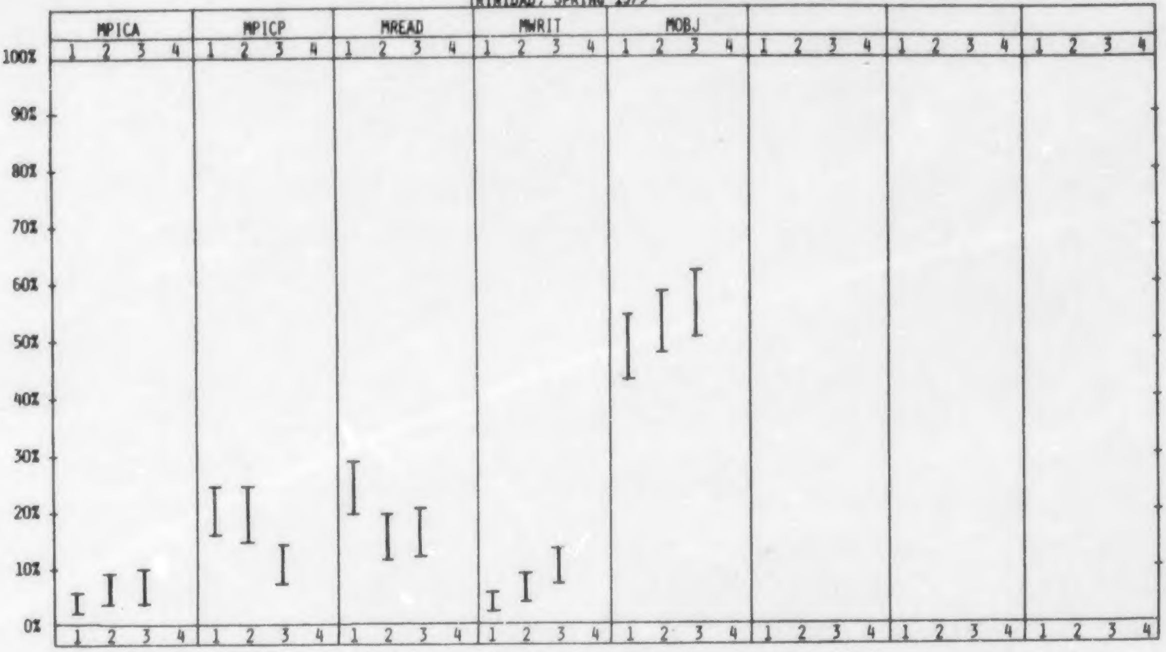


Figure 94

Goodman's Confidence Intervals of Category 12 Items for First Grade Classes

Trinidad, Spring 1973

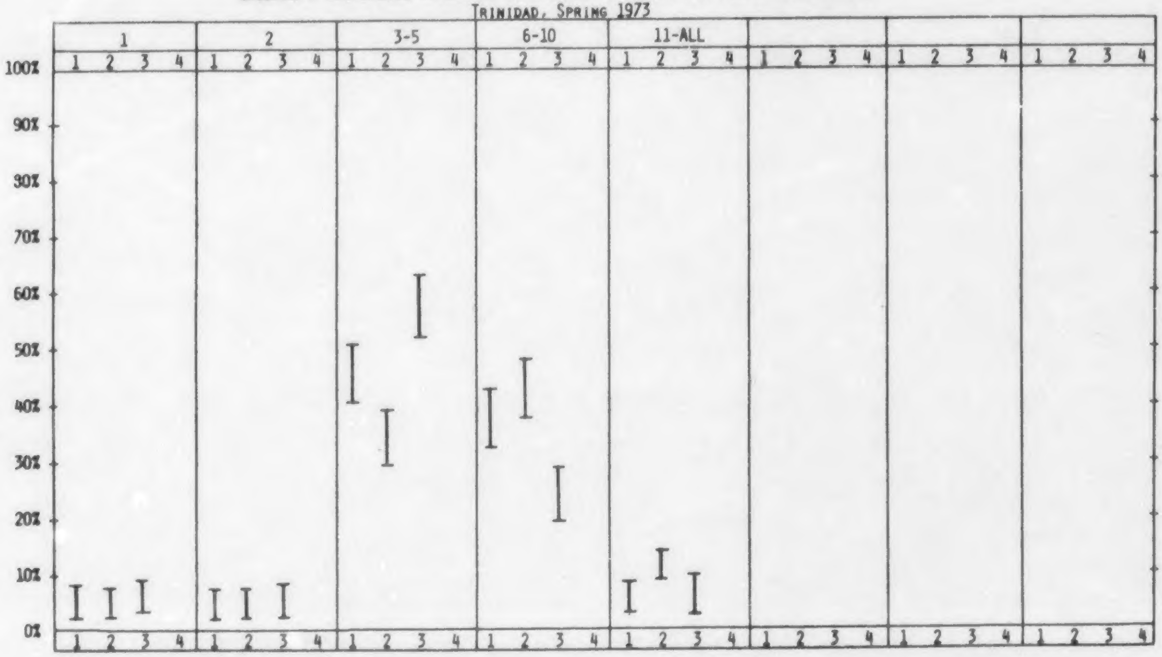


Figure 95

Goodman's Confidence Intervals of Category 15 Items for First Grade Classes

Trinidad, Spring 1973

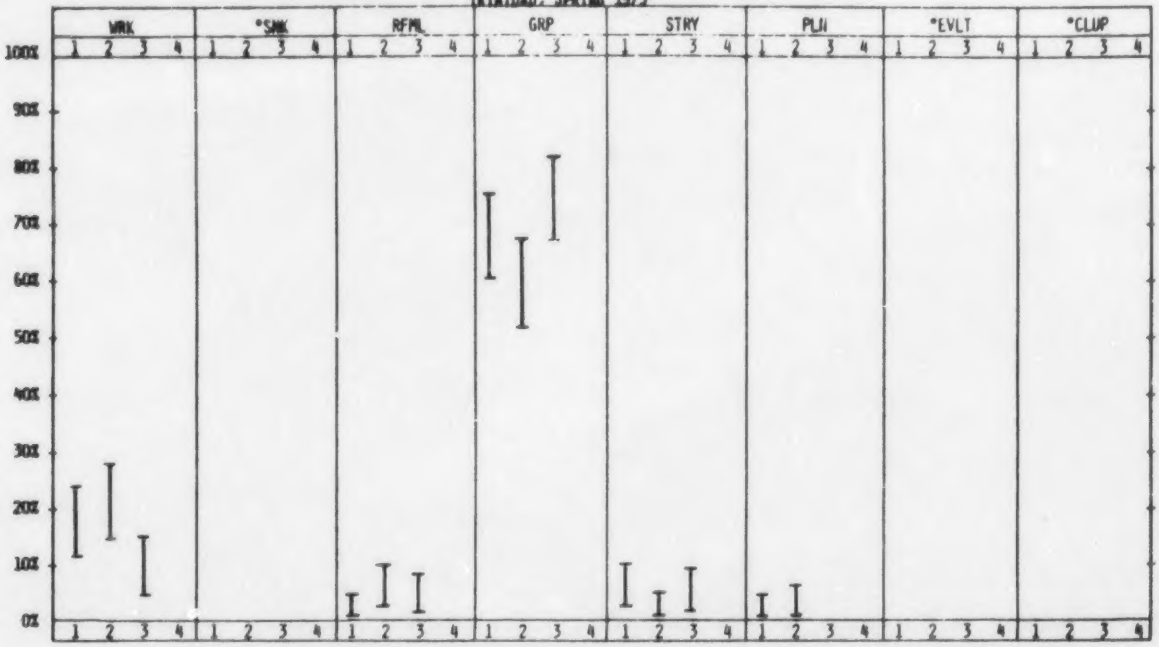
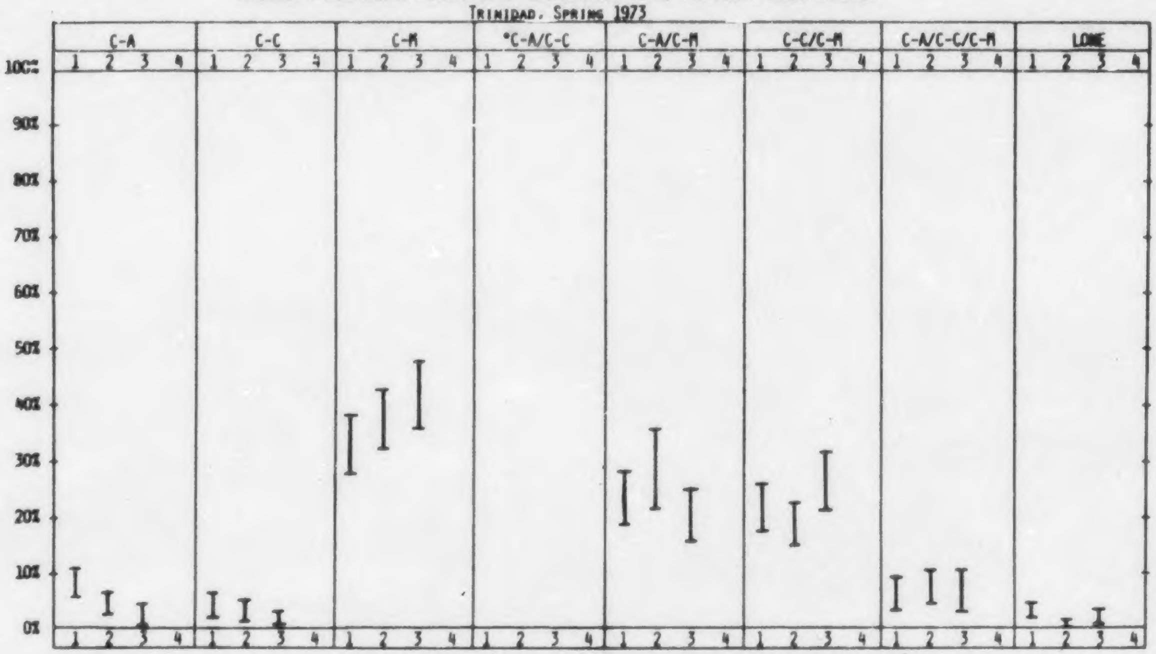


Figure 96

Goodman's Confidence Intervals of Interaction Types for First Grade Classes

Trinidad, Spring 1973



Spring Comparisons of the Third Grade Classes in Trinidad

Class 3 stood out as being different from the other third grade classes in this center (see Figures 97-106). Compared to children in classes 1, 2 and 4, class 3 children spent more of their day in self-selected activities and less of it in teacher-structured activities, were more often in smaller groups of one to five students and less often in large groups of six to ten students, received more individual attention from adults and intereacted with both adults and materials more frequently. The children in this class were also more involved in picture-making activities than class 2 students.

Classes 1, 2 and 4 were similar in terms of child-autonomy and teacher-structuredness, and interaction type and are fairly similar in terms of the materials they use. They do differ from each other in terms of the size of groups the children are in. Class 1 students were more frequently in large groups containing more than ten students than students in other classes. Class 3 students were less often in groups containing six to ten students and were more often in groups containing three to five students than were students in classes 1 and 2. Only classes 1 and 4 differed from each other in the kind of materials used. Class 1 children were more often involved in writing activities than class 4 children.

No classroom ratings were obtained from the curriculum assistant. The High/Scope field consultant rated class 3 as the best implemented and class 1 as the least well implemented. The characteristics which described the best-rated classroom were: individual attention, small groups, child-autonomy and child-adult/child-material interactions. The least well implemented classroom was characterized by large groups.

Figure 97
Goodman's Confidence Intervals of Category 1 Items for Third Grade Classes
Trinidad, Spring 1973

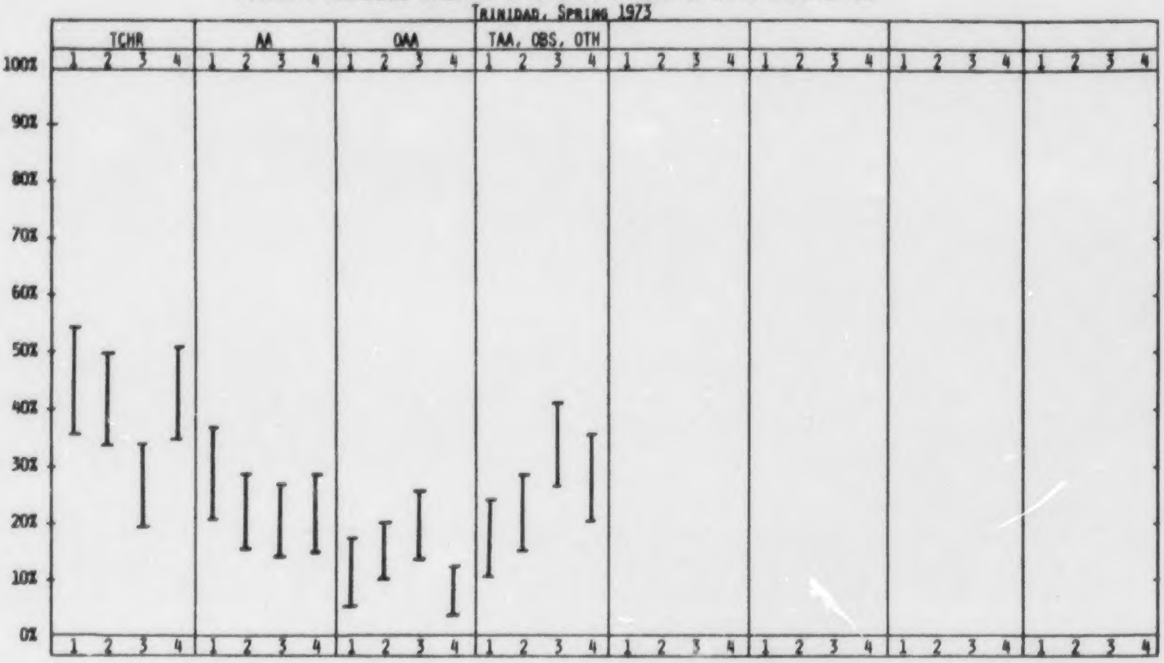


Figure 98
Goodman's Confidence Intervals of Category 2 Items for Third Grade Classes
Trinidad, Spring 1973

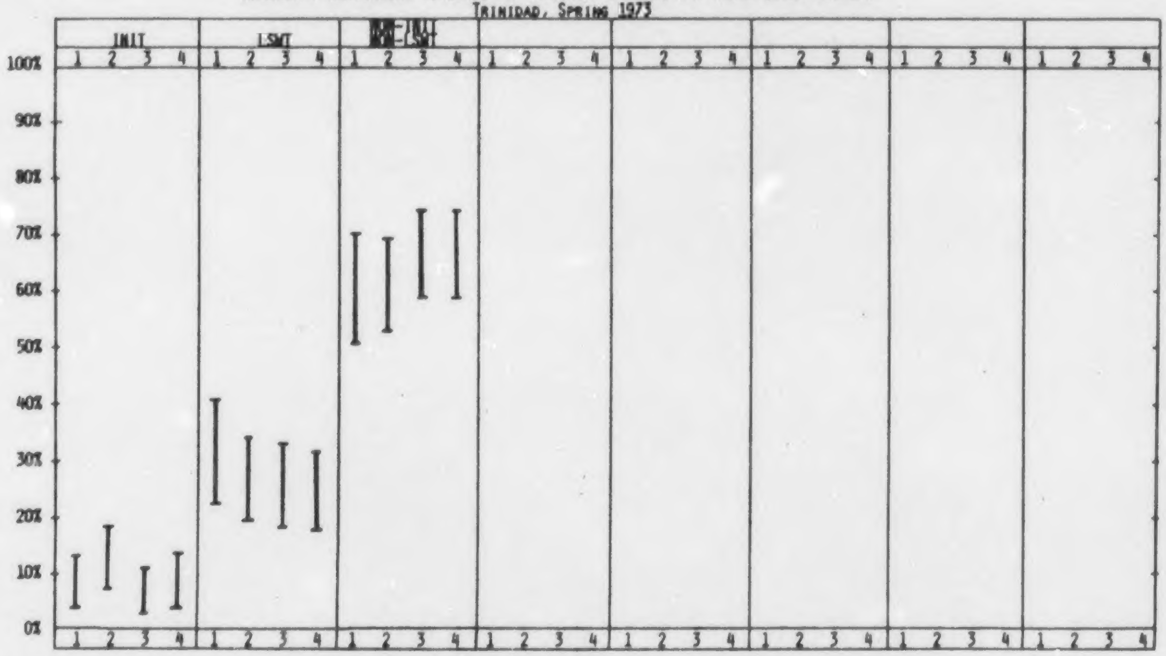


Figure 99
Goodman's Confidence Intervals of Category 4 Items for Third Grade Classes
Trinidad, Spring 1973

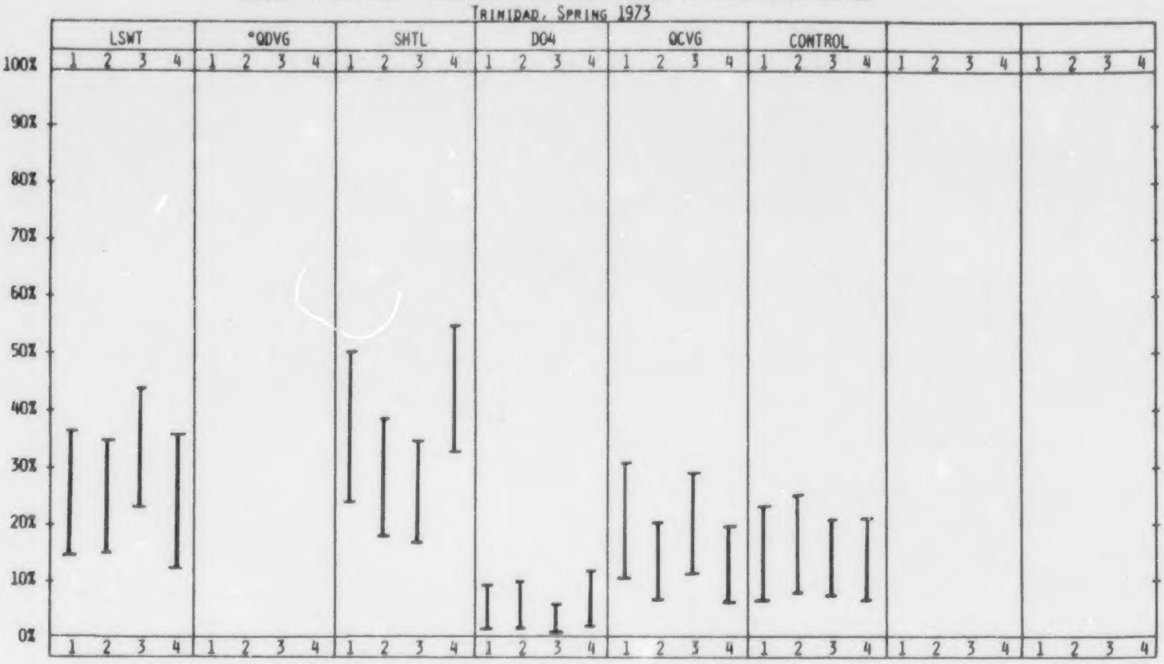


Figure 100
Goodman's Confidence Intervals of Category 5 Items for Third Grade Classes
Trinidad, Spring 1973

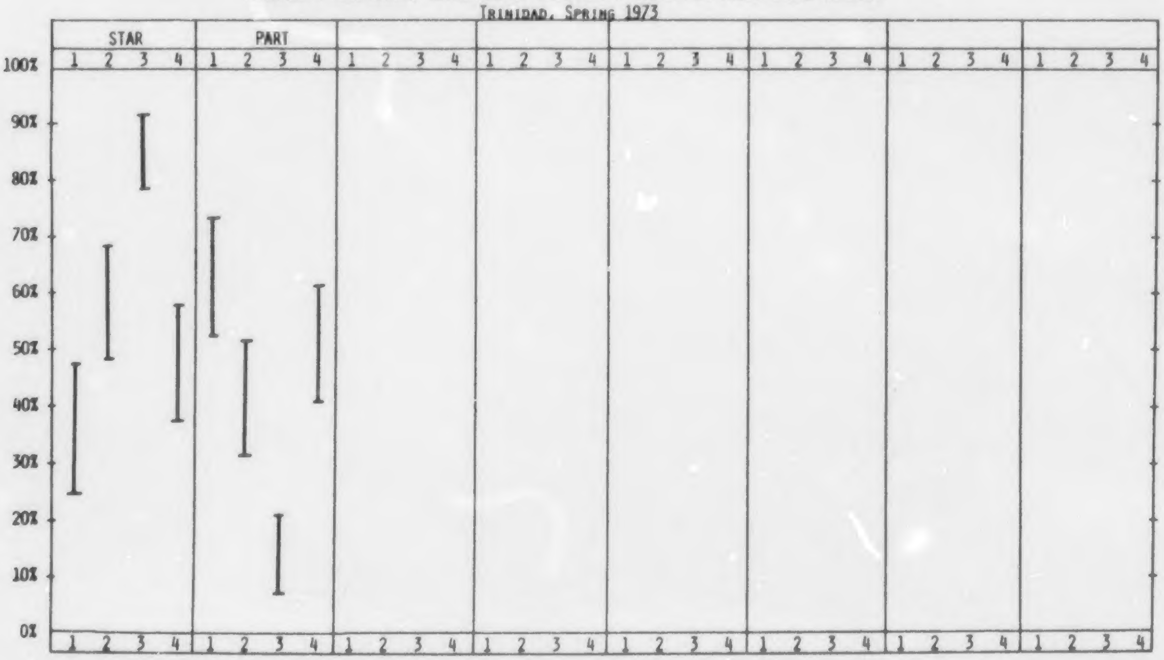


Figure 101

Goodman's Confidence Intervals of Category 6 Items for Third Grade Classes
Trinidad, Spring 1973

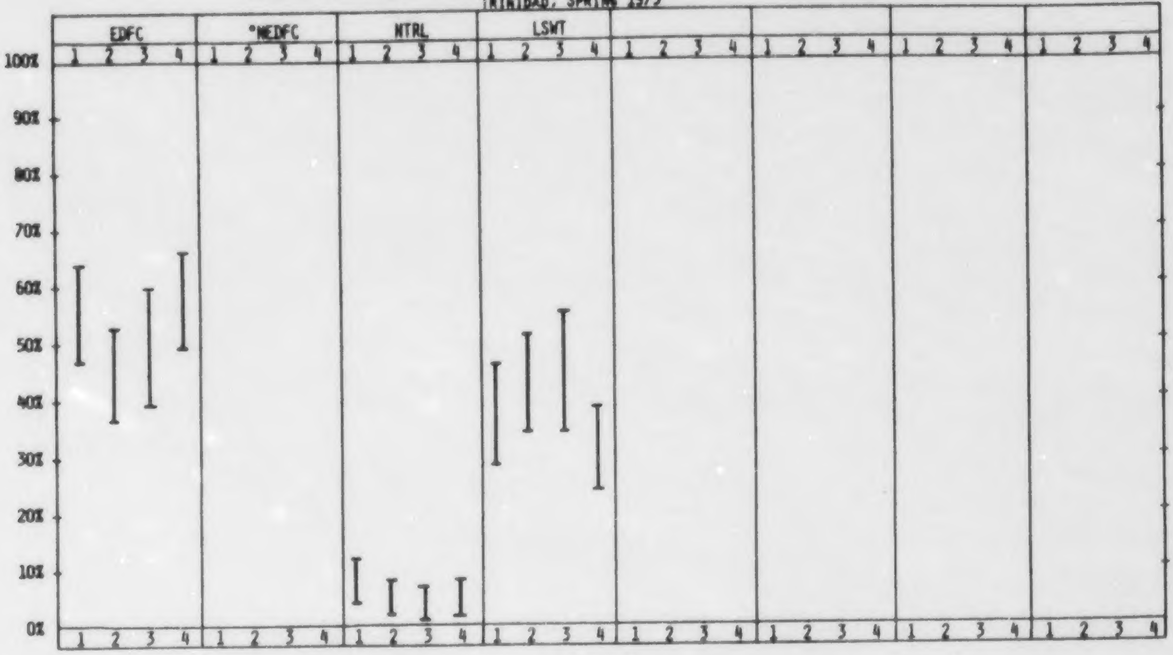


Figure 102

Goodman's Confidence Intervals of Category 7 Items for Third Grade Classes
Trinidad, Spring 1973

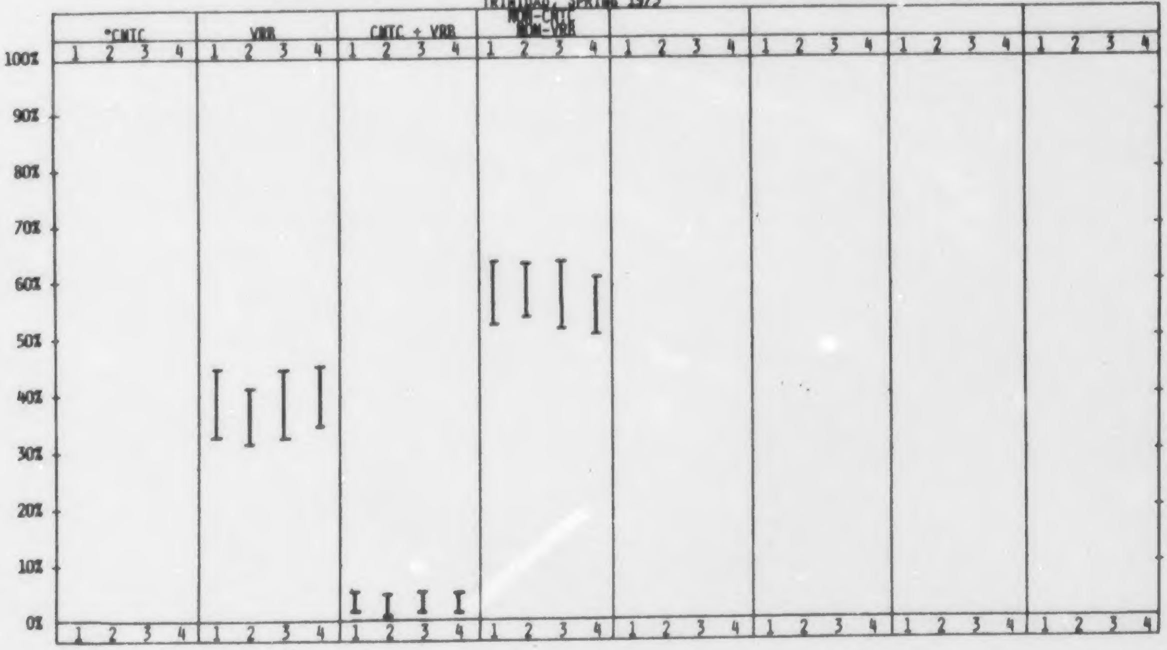


FIGURE 103

GOODMAN'S CONFIDENCE INTERVALS OF CATEGORY 9 ITEMS FOR THIRD GRADE CLASSES

TRINIDAD, SPRING 1973

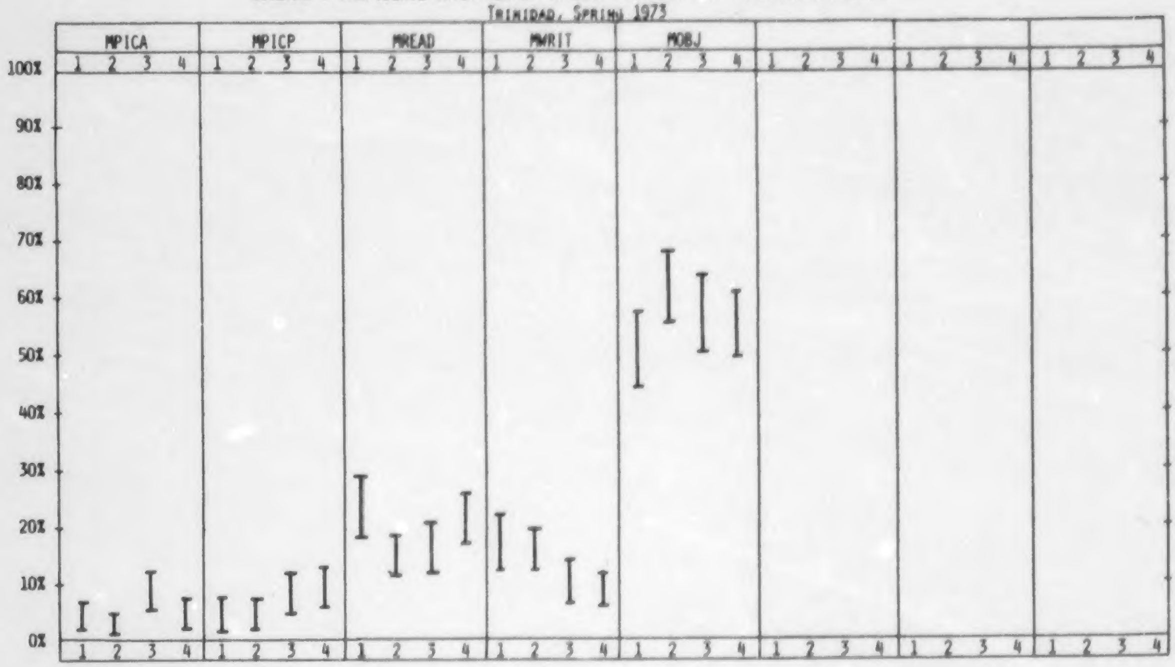


FIGURE 104

GOODMAN'S CONFIDENCE INTERVALS OF CATEGORY 12 ITEMS FOR THIRD GRADE CLASSES

TRINIDAD, SPRING 1973

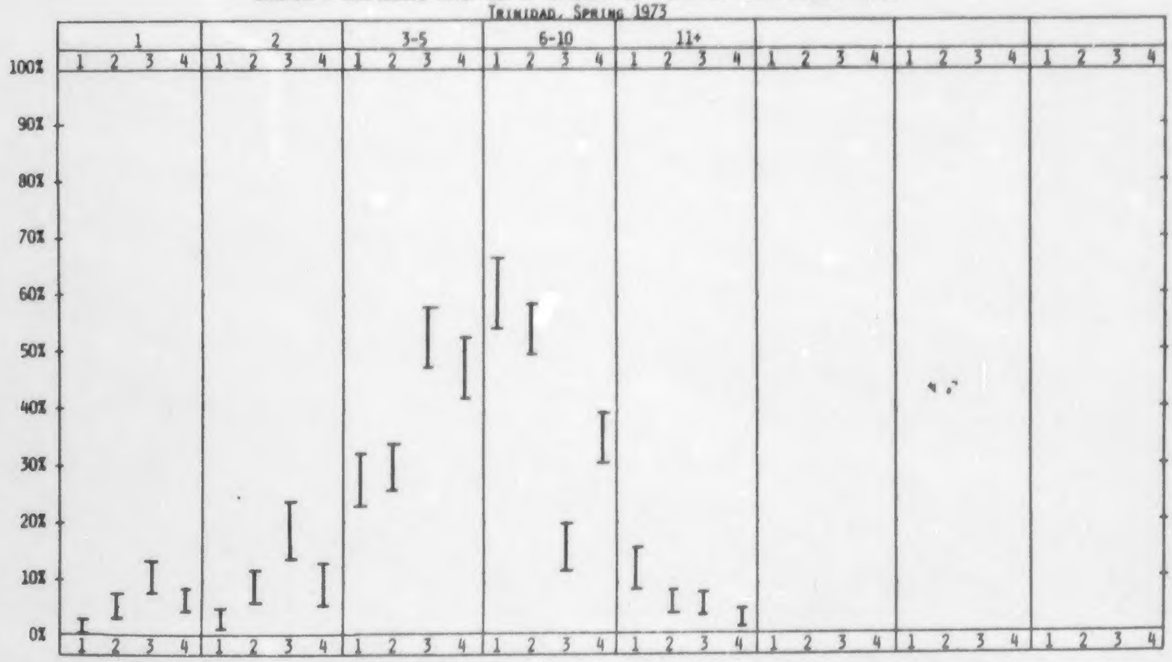


Figure 105

Goodman's Confidence Intervals of Category 15 Items for Third Grade Classes

Trinidad, Spring 1973

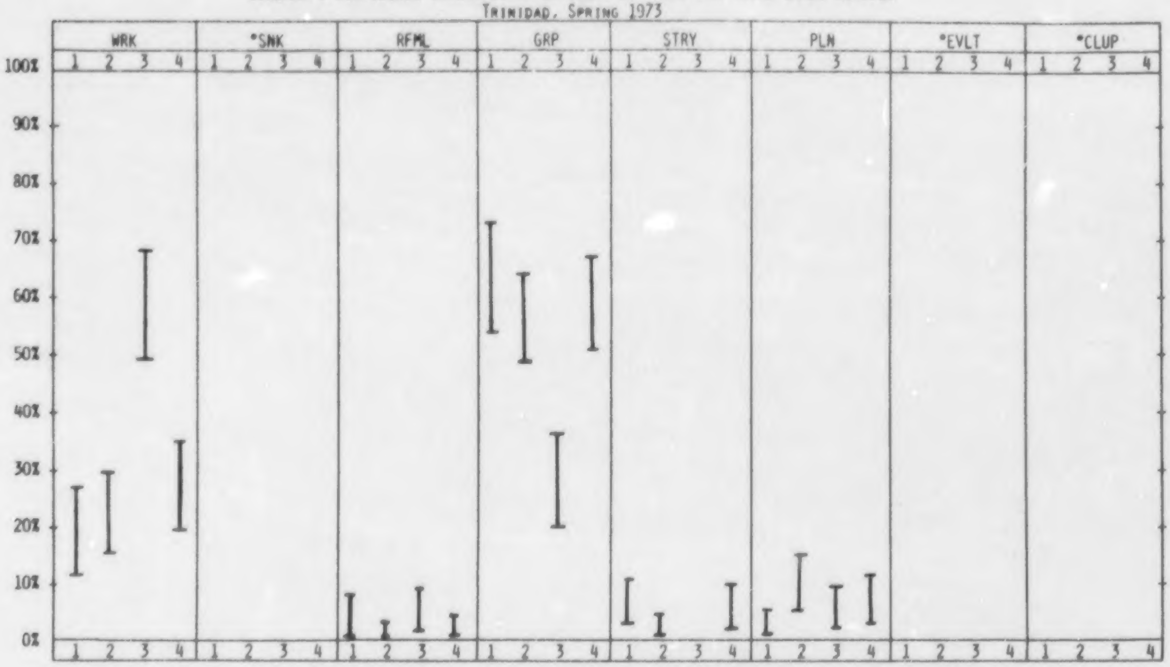
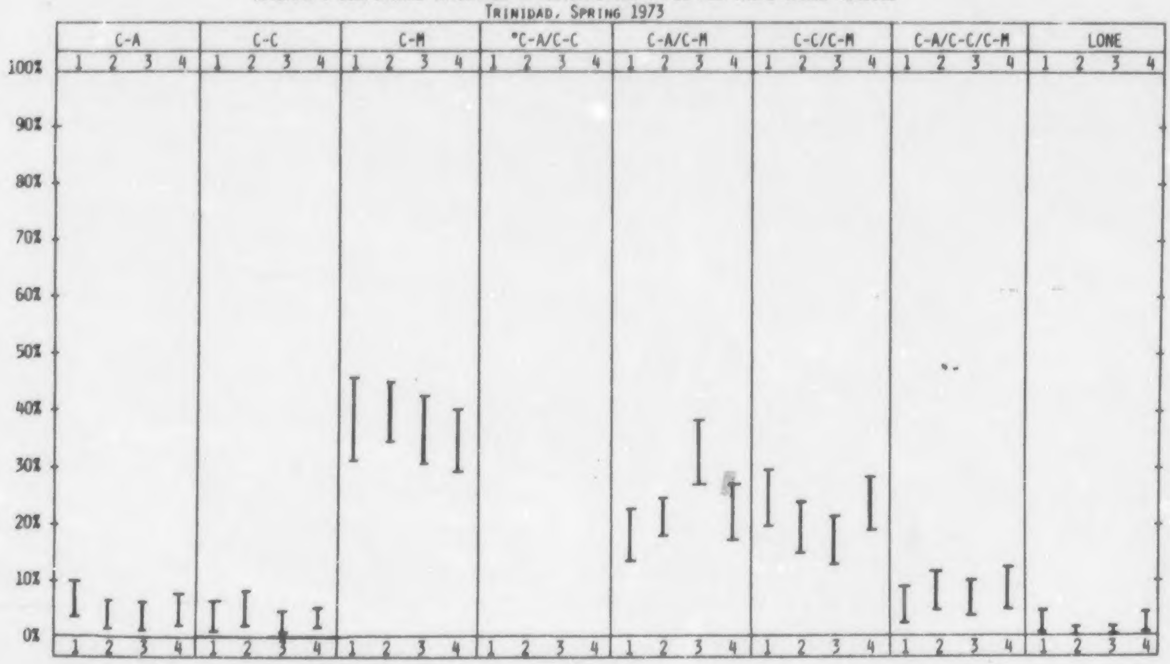


Figure 106

Goodman's Confidence Intervals of Interaction Types for Third Grade Classes

Trinidad, Spring 1973



Spring Comparisons of the First Grade Classes in Greeley

The first grade comparisons indicated that the behaviors and activities observed in class 3 were different from those seen in the other two first grade classes (see Figures 107-116). Class 3 differed in the kind of materials used, in the size of the group, and in the proportion of the day spent in child-structured and teacher-structured activities. Class 3 students spent less time in teacher-structured groups and were more often in groups containing more than ten students and less often in groups of six to ten students. Class 3 students further differed from class 1 students by spending a greater percent of their day in self-selected activities and in groups of two students. Class 3 students were also more often drawing or making pictures than class 2 students.

Classes 1 and 2 were similar in terms of group size and interaction type but differed with respect to the structure of activities and the kind of material used. Class 1 students were more involved in small group, teacher-structured activities, were more often seen reading and were less often involved in informal, entire class activities such as music or story time.

Matrix ratings were not done by the curriculum assistants. The High/Scope field consultant ratings indicated that class 2 was not implementing the curriculum and that class 3, although not implementing it well, was implementing it better than either class 1 or class 2. Small group, teacher-structured activities and groups of six to ten students characterized the lower-rated classroom. Larger groups (10+) and picture-making activities characterized the better-rated class.

Figure 107

Goodman's Confidence Intervals of Category 1 Items for First Grade Classes
Greeley, Spring 1973

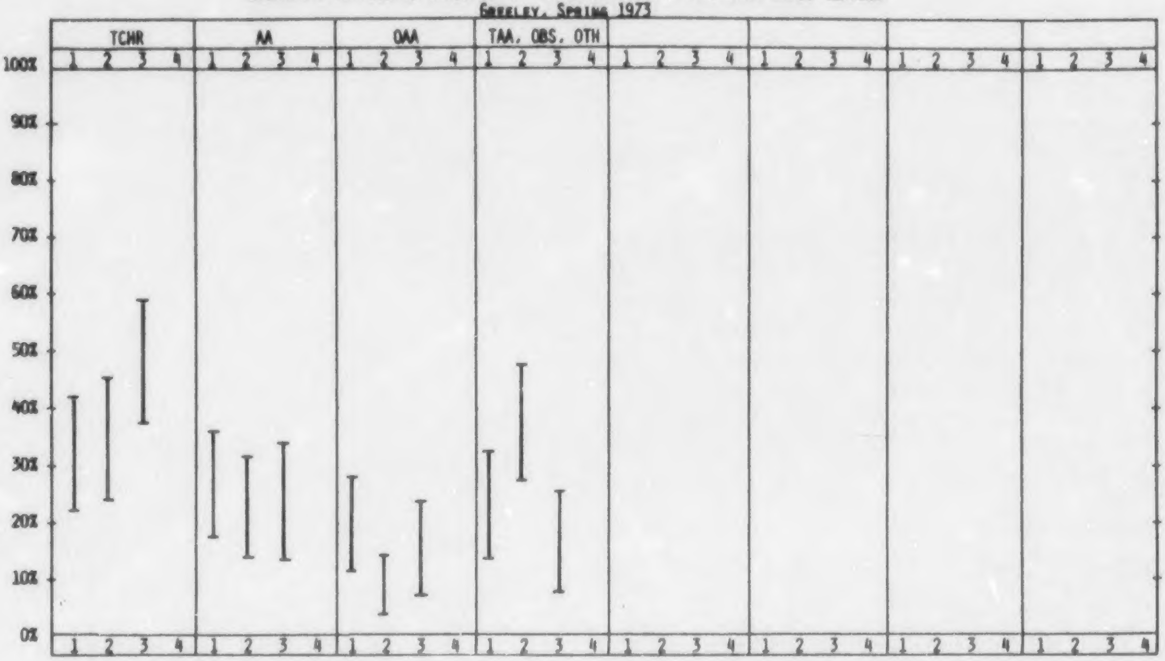


Figure 108

Goodman's Confidence Intervals of Category 2 Items for First Grade Classes
Greeley, Spring 1973

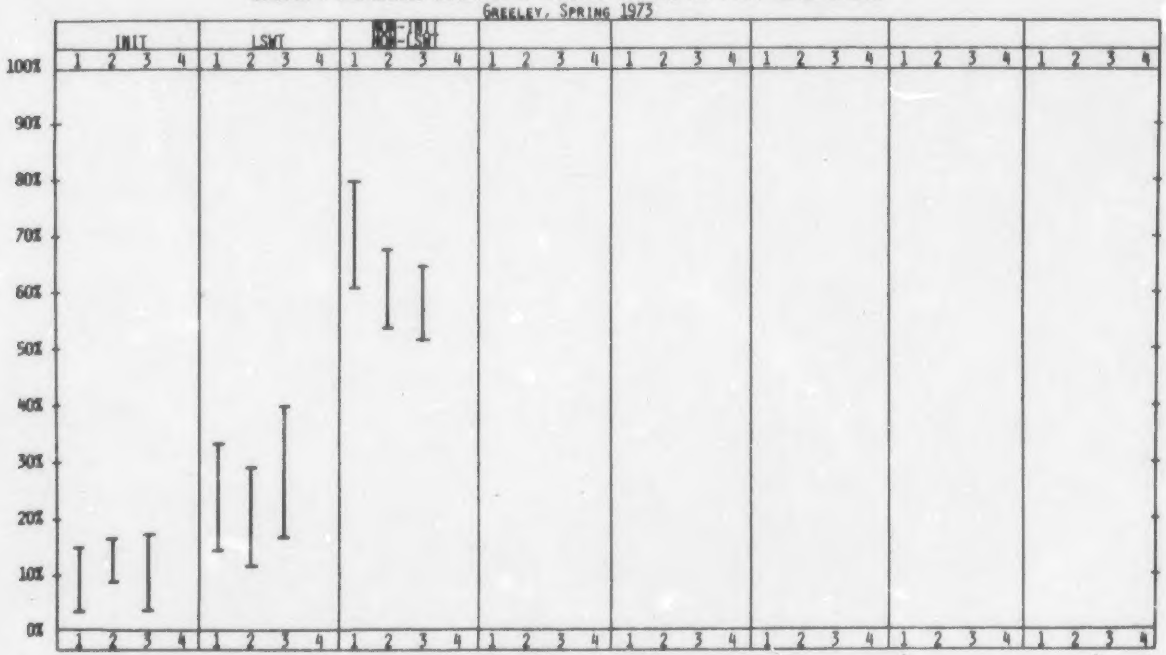


Figure 109
Goodman's Confidence Intervals of Category 4 Items for First Grade Classes
Greeley, Spring 1973

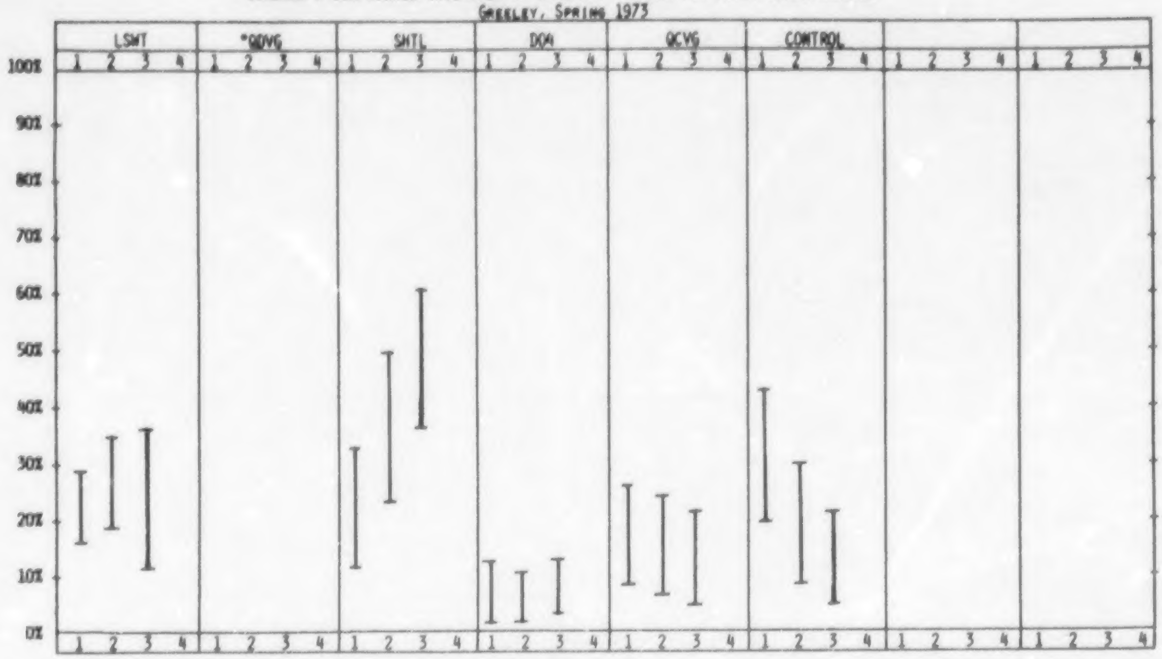


Figure 110
Goodman's Confidence Intervals of Category 5 Items for First Grade Classes
Greeley, Spring 1973

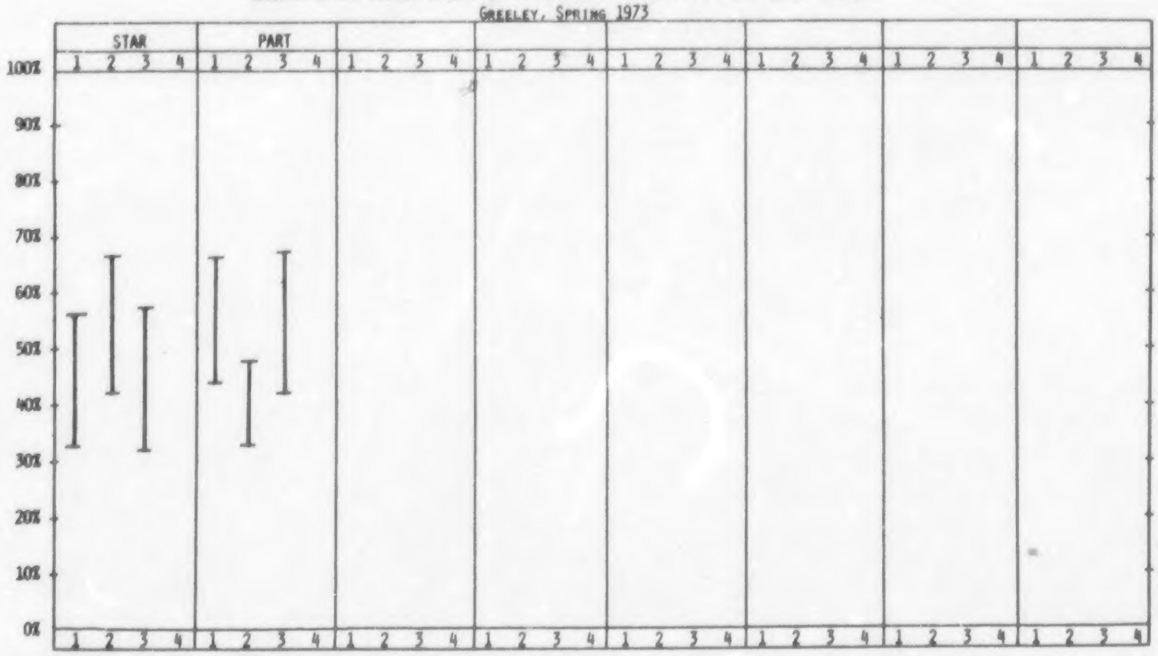


Figure 111

Goodman's Confidence Intervals of Category 6 Items for First Grade Classes

Greeley, Spring 1973

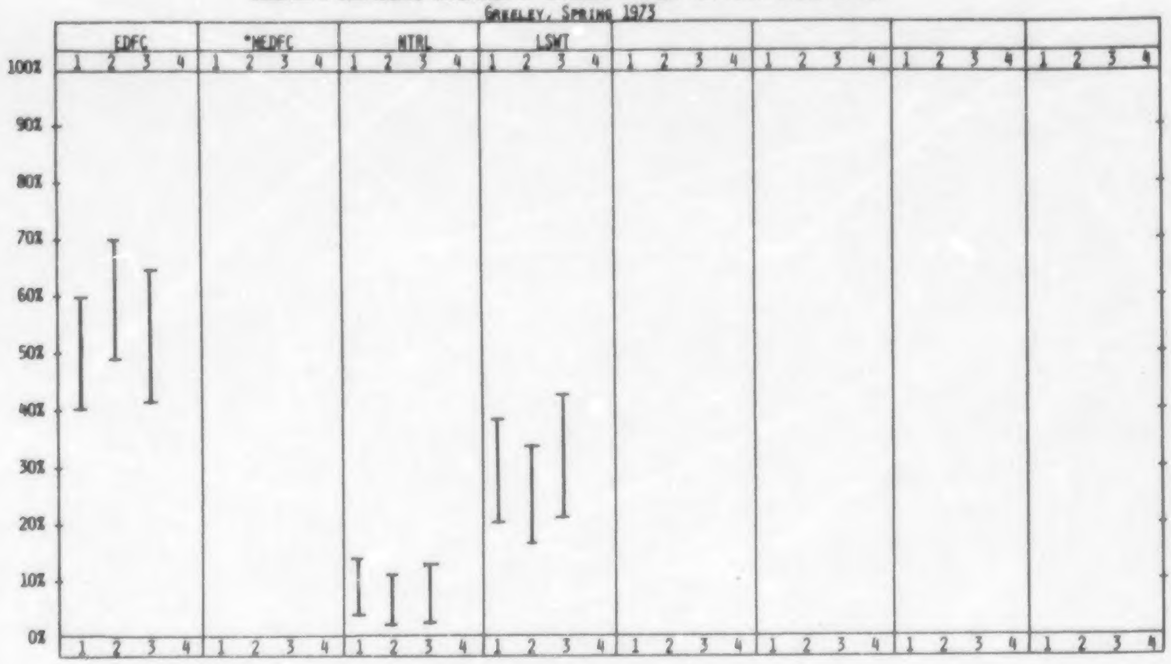


Figure 112

Goodman's Confidence Intervals of Category 7 Items for First Grade Classes

Greeley, Spring 1973

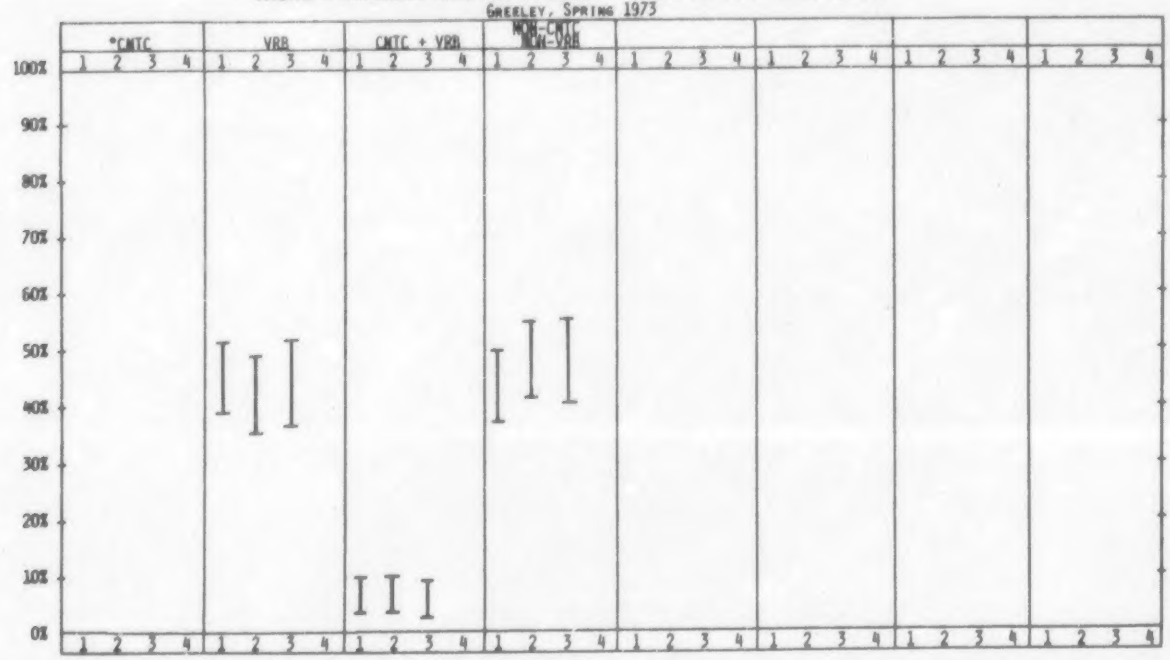


Figure 113

Goodman's Confidence Intervals of Category 9 Items for First Grade Classes

Greeley, Spring 1973

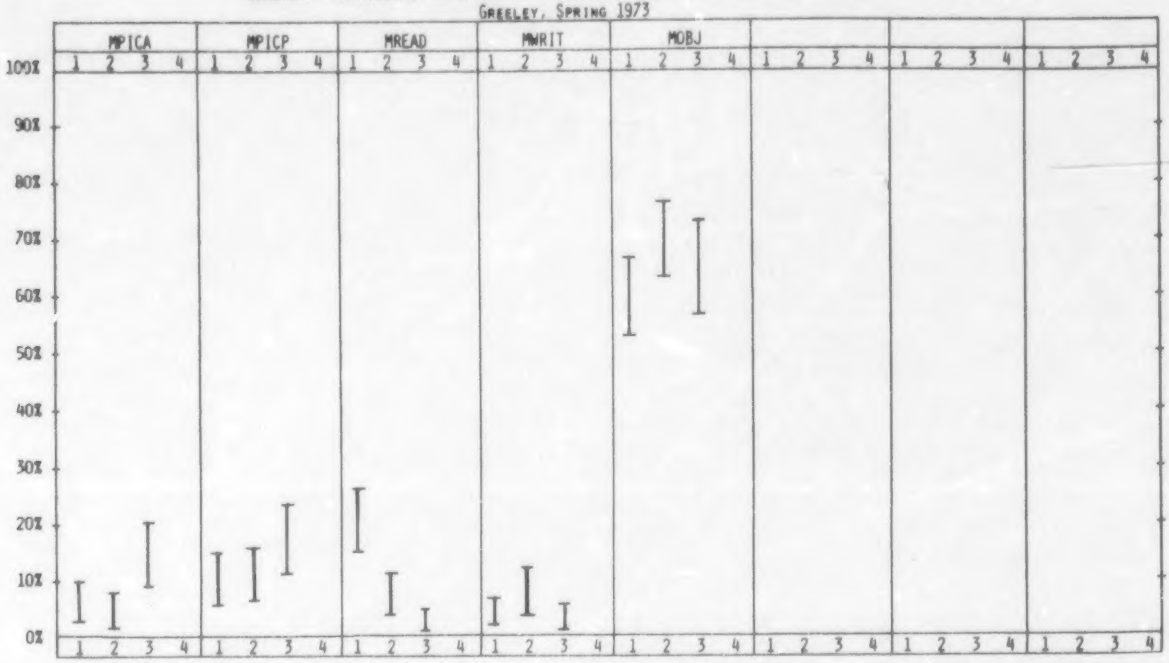


Figure 114

Goodman's Confidence Intervals of Category 12 Items for First Grade Classes

Greeley, Spring 1973

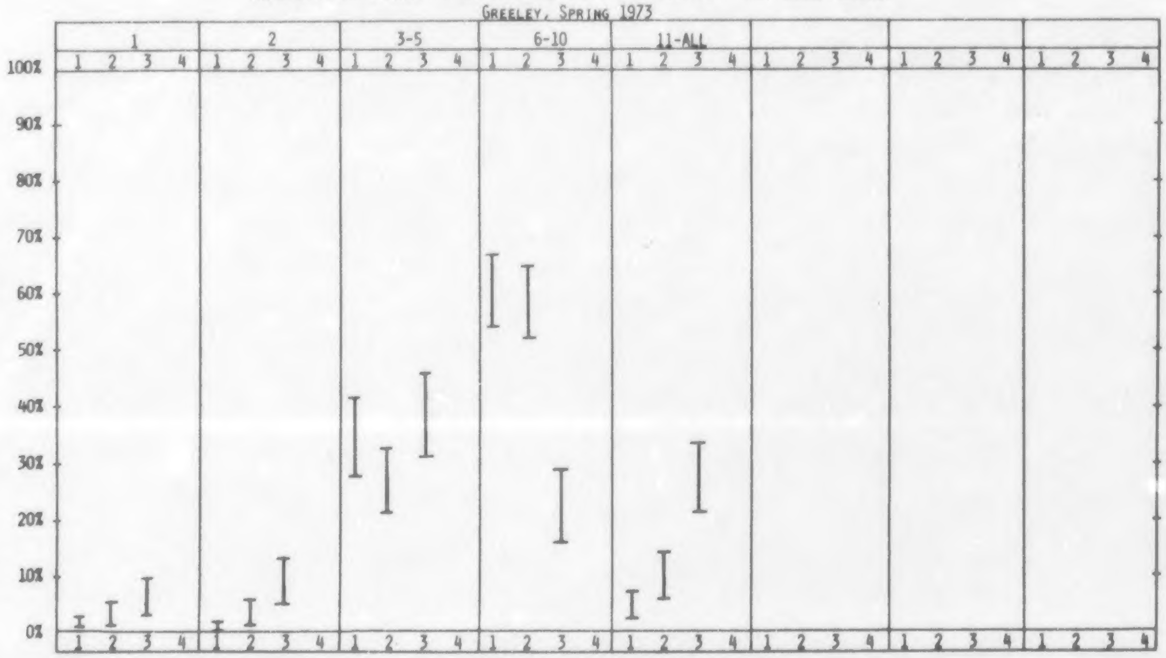


Figure 115

Goodman's Confidence Intervals of Category 15 Items for First Grade Classes

Greeley, Spring 1973

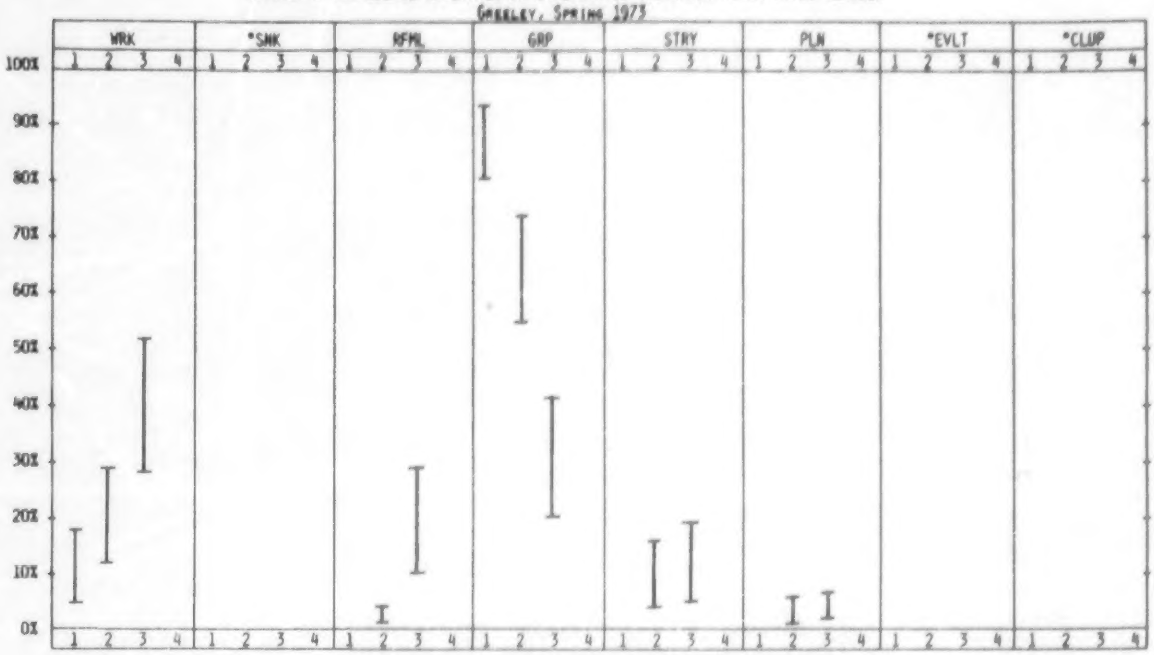
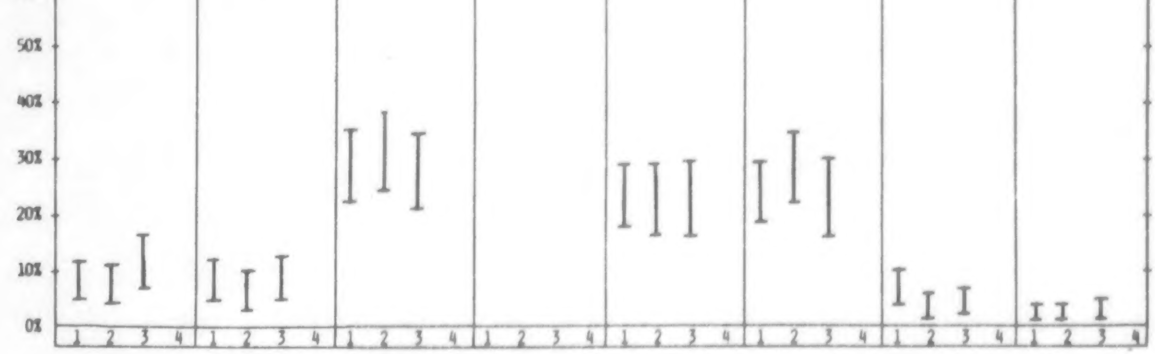


Figure 116

Goodman's Confidence Intervals of Interaction Types for First Grade Classes

Greeley, Spring 1973



Spring Comparisons of the Third Grade Classes in Greeley

The two third grade classes looked very different from each other (see Figures 117-126). Class 1 children were more often involved in teacher-directed activities, were more often in groups containing six to ten pupils and spent more time in child-material interactions.

Class 3 children were more often in small groups of two to five students and in large groups of more than ten students, were more often involved in informal large group activities such as watching a filmstrip or learning a new song and were more frequently involved in self-selected activities. The adults in this class did more showing and telling than the class 1 adults.

Class 3 adults, according to the curriculum assistant and the field consultant, implemented the curriculum more effectively than class 1 adults. The better-rated class was characterized by both small groups and large groups, child-autonomy, large group activity and adult showing and telling behavior.

Figure 117
Goodman's Confidence Intervals of Category 1 Items for Third Grade Classes
Greeley, Spring 1973

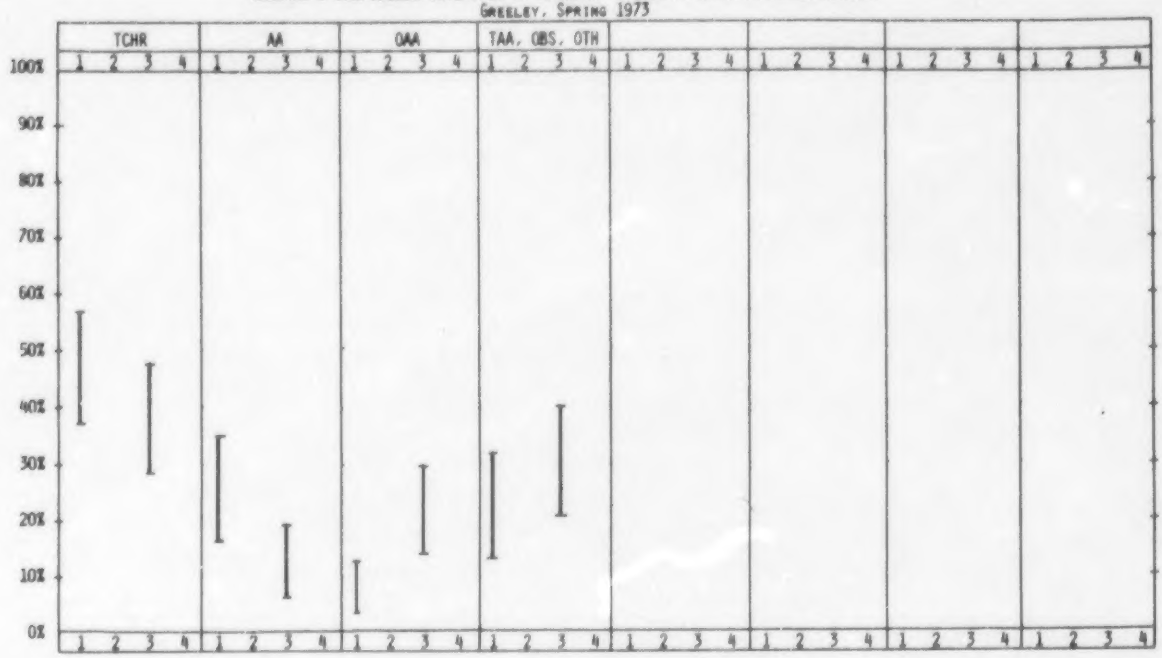
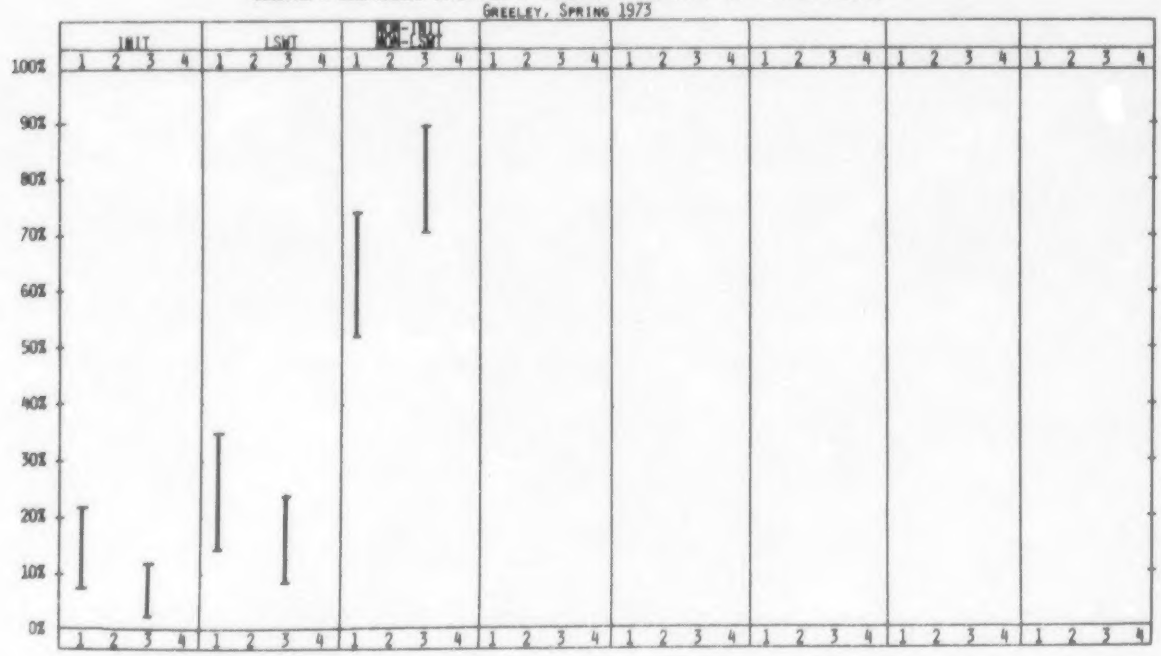


Figure 118
Goodman's Confidence Intervals of Category 2 Items for Third Grade Classes
Greeley, Spring 1973



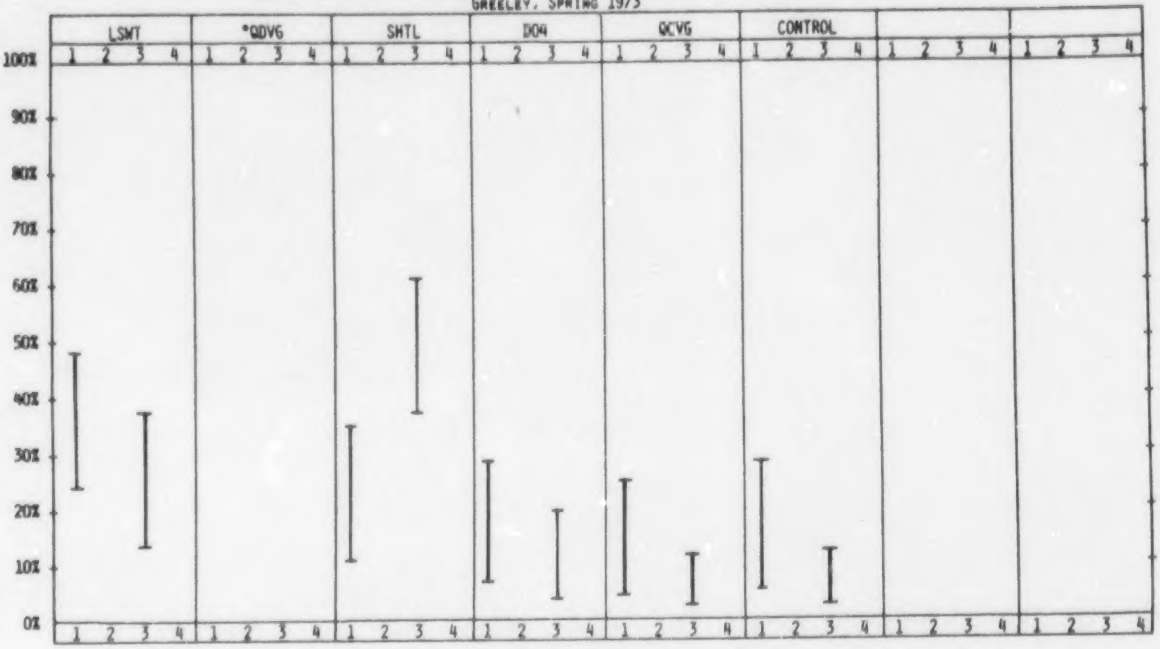


Figure 119
Goodman's Confidence Intervals of Category 4 Items for Third Grade Classes
Greeley, Spring 1973

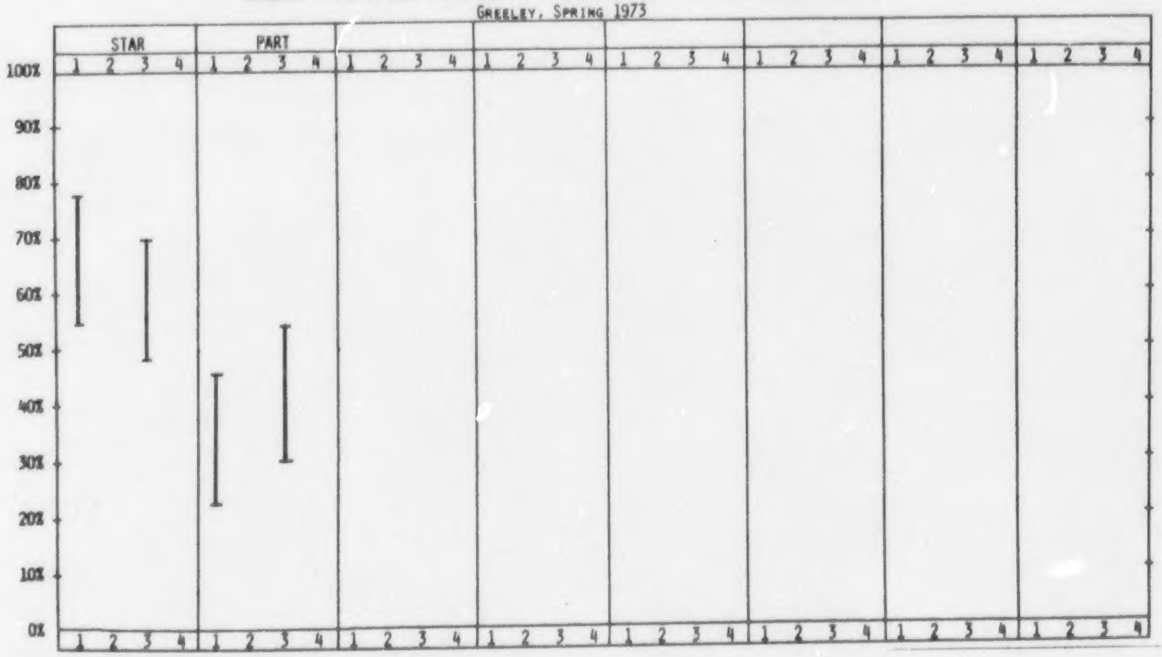


Figure 120
Goodman's Confidence Intervals of Category 5 Items for Third Grade Classes
Greeley, Spring 1973

Figure 121
Goodman's Confidence Intervals of Category 6 Items for Third Grade Classes
Greeley, Spring 1973

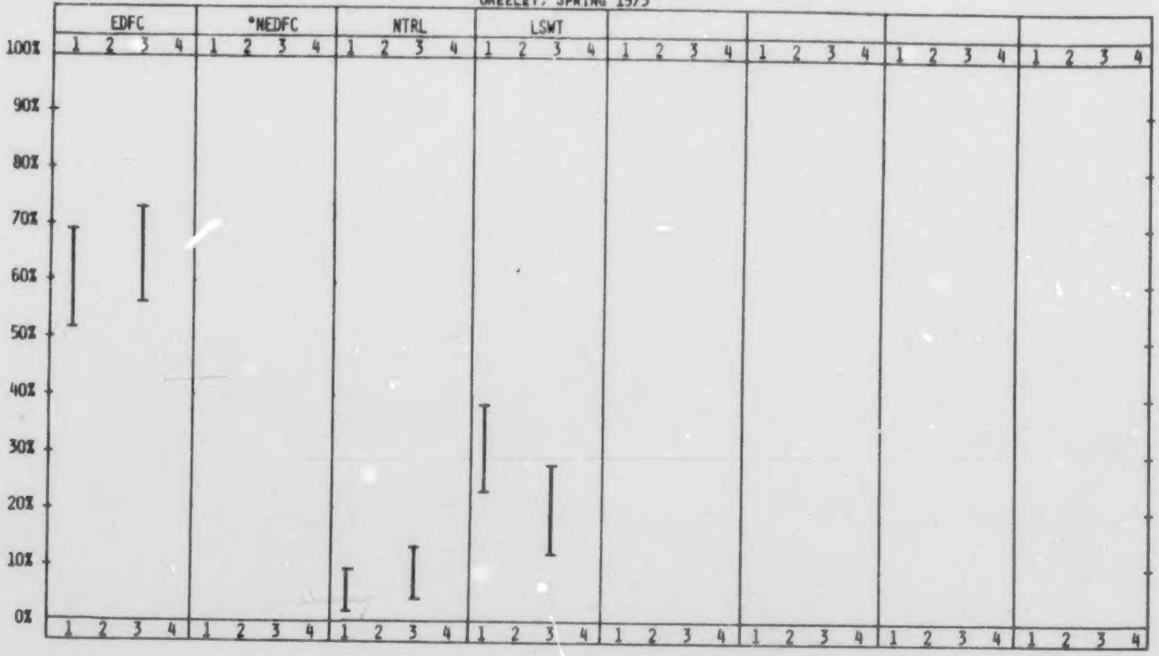


Figure 122
Goodman's Confidence Intervals of Category 7 Items for Third Grade Classes
Greeley, Spring 1973

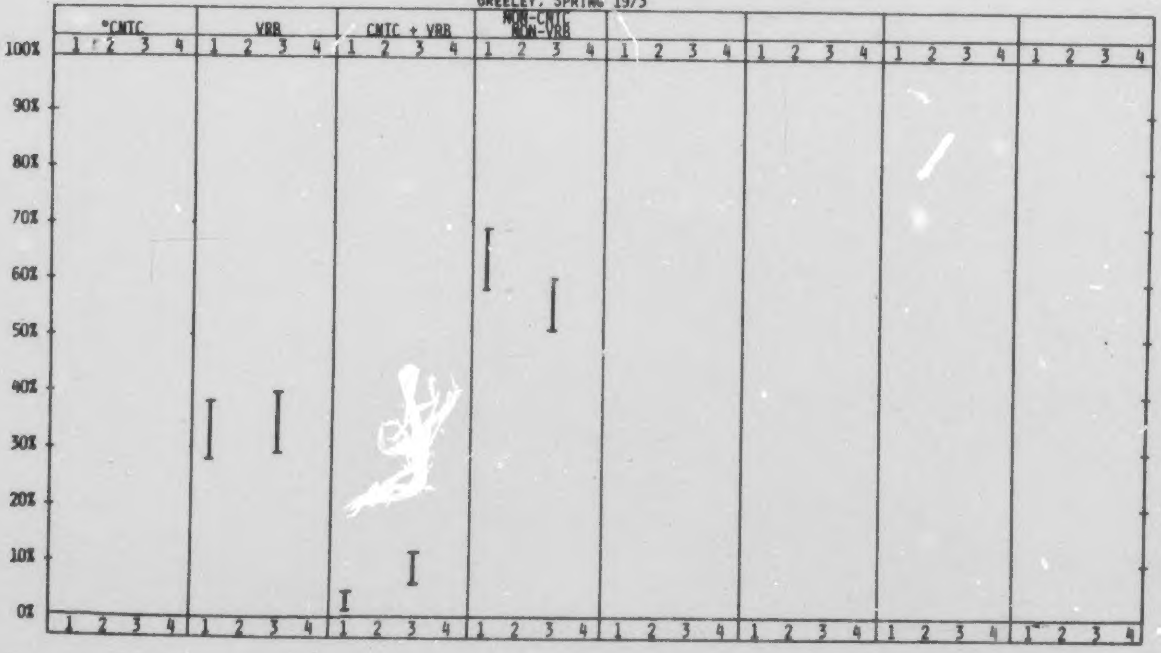


Figure 123
Goodman's Confidence Intervals of Category 9 Items for Third Grade Classes
Greeley, Spring 1973

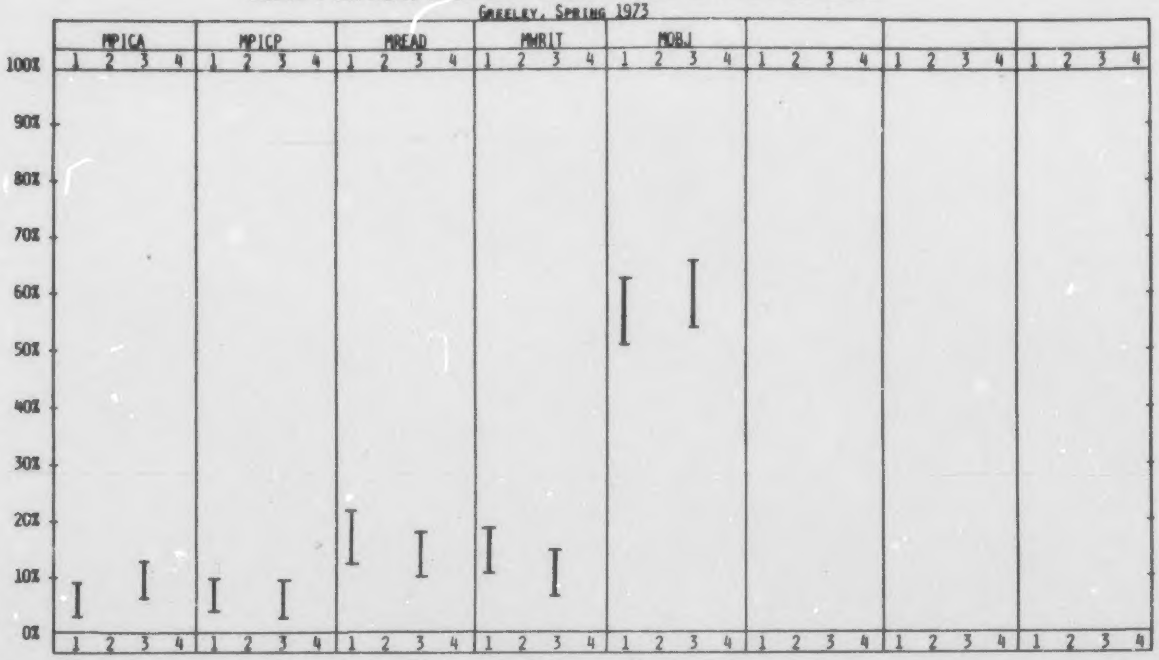


Figure 124
Goodman's Confidence Intervals of Category 12 Items for Third Grade Classes
Greeley, Spring 1973

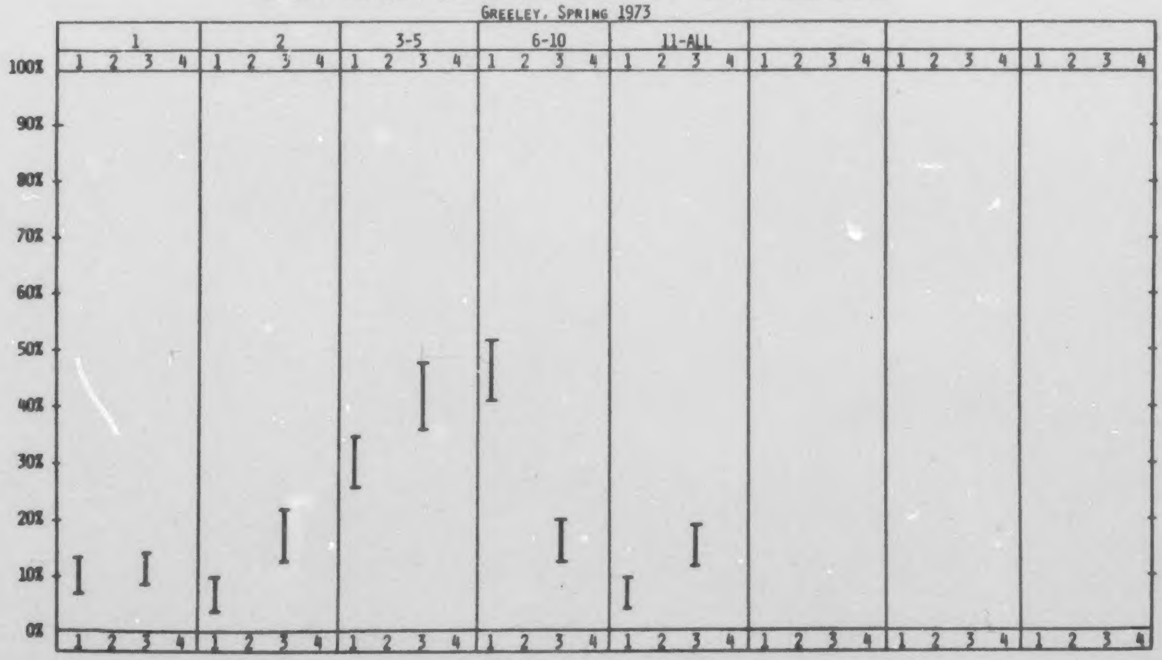


Figure 125

Goodman's Confidence Intervals of Category 15 Items for Third Grade Classes

Greeley, Spring 1973

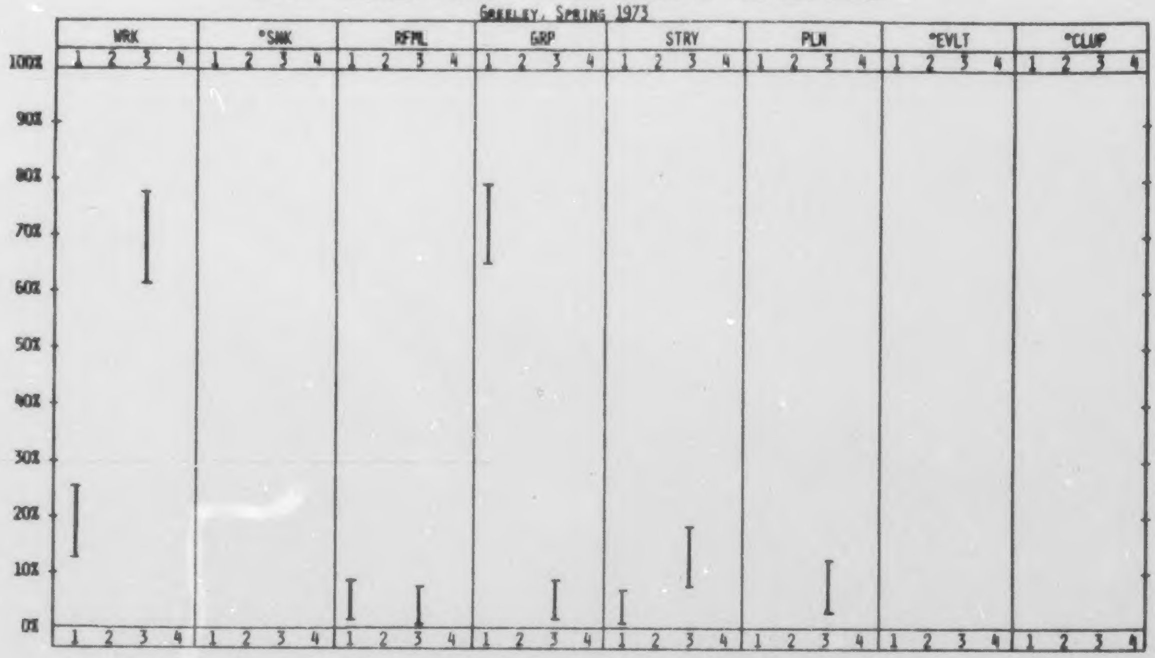
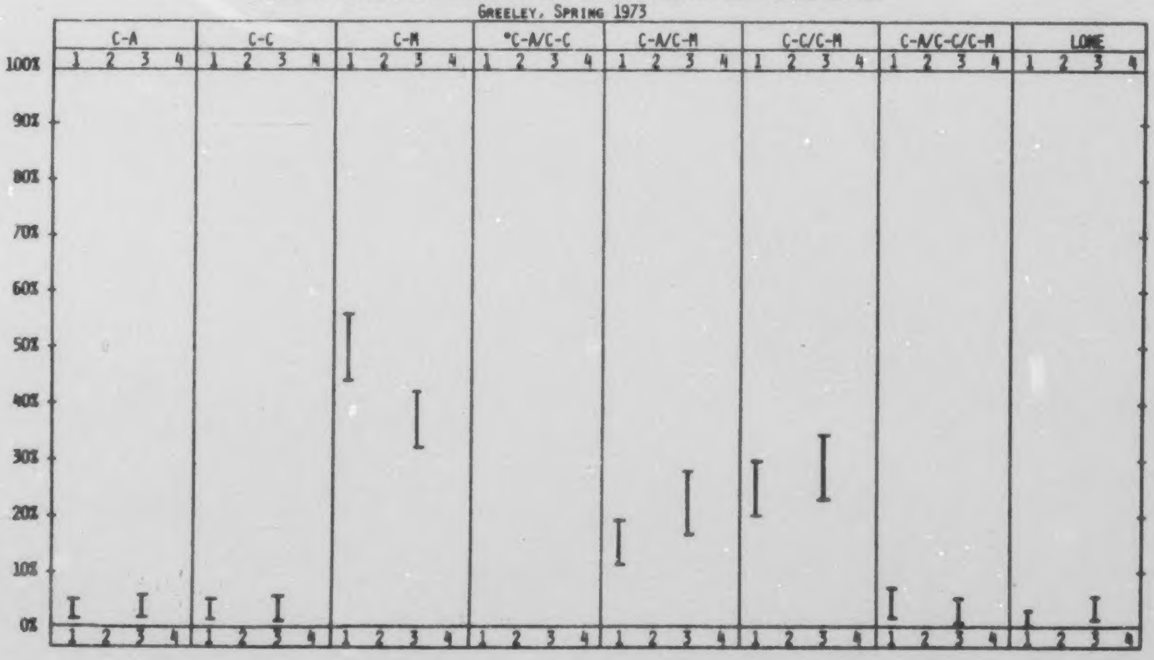


Figure 126

Goodman's Confidence Intervals of Interaction Types for Third Grade Classes

Greeley, Spring 1973



Spring Comparisons of the First Grade Classes in Florida

Classes 1 and 2 were similar in regard to group size, material usage, amount of teacher-structured and child-structured activity and interaction type (see Figures 127-134). Class 3 differed from the other classes in the kinds of materials used, in the amount of child-autonomy and group size. The children in this class were more often involved in activities of their choice than students in other classes, were less often engaged in writing activities than children in classes 1 or 2, used object material more often than children in classes 1 and 4 and used picture materials less often than class 4 children. Class 3 children were more often in groups by themselves than students in class 1 or class 4, were more often in groups of more than ten than class 2 students and were less often in groups of three to five students than class 1 students.

Class 1 varied from class 4 in that class 1 children were more often involved in writing activities and along with class 2 children were less often in groups containing more than ten students.

Interaction type varied slightly across the four classrooms. Class 3 children interacted more often with both children and materials than class 2 children and class 2 children interacted more often with both adults and materials than class 4 children.

According to the curriculum assistants' rating all classes were implementing the curriculum equally well. The field consultant rated class 1 as being the best implemented and class 2 as being the least well implemented. The observation data showed no differences between these two classes.

Figure 127

Goodman's Confidence Intervals of Category 1 Items for First Grade Classes

Florida, Spring 1973

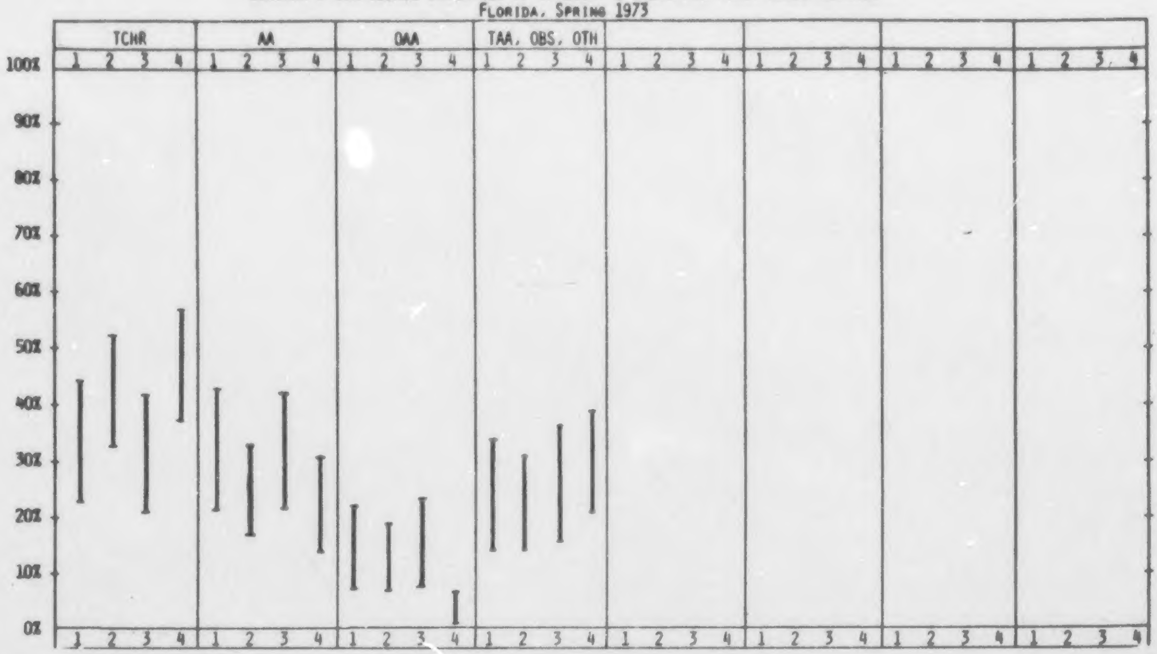


Figure 128

Goodman's Confidence Intervals of Category 4 Items for First Grade Classes

Florida, Spring 1973

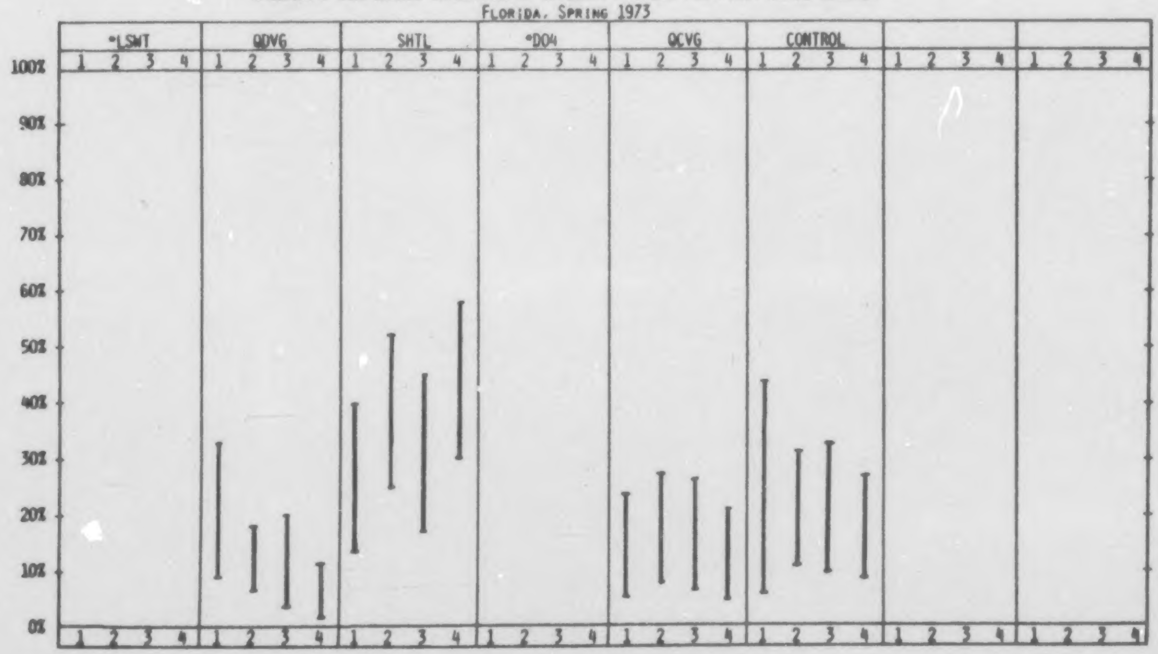


Figure 129

Goodman's Confidence Intervals of Category 5 Items for First Grade Classes

Florida, Spring 1973

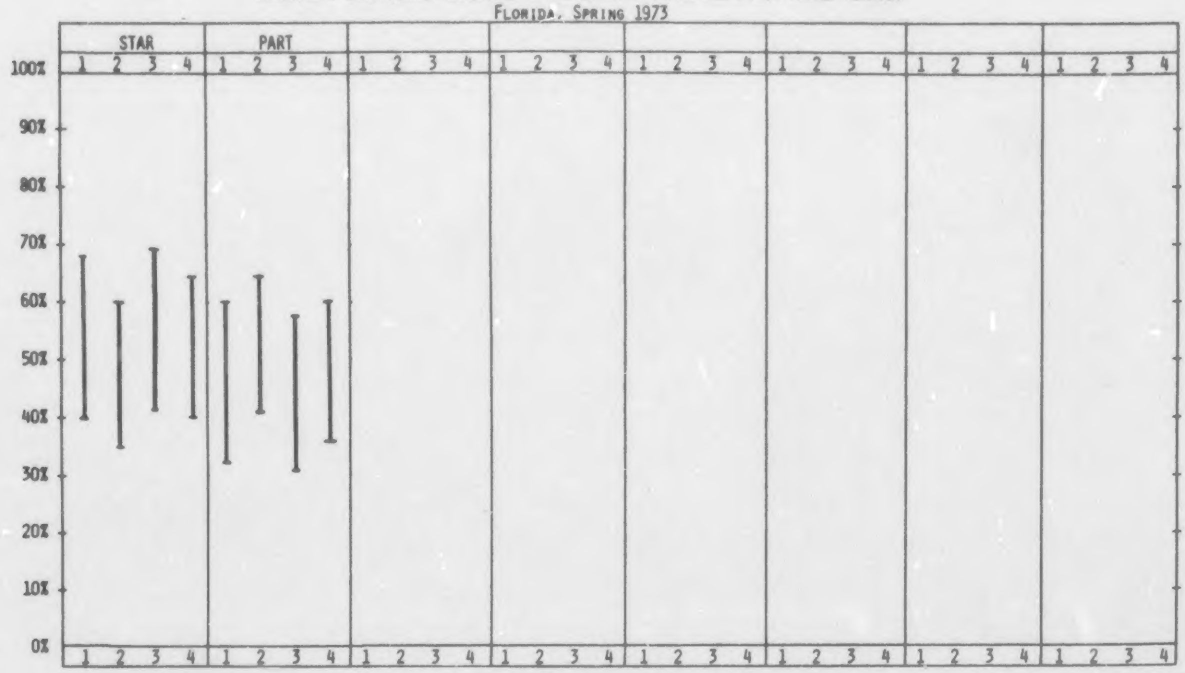


Figure 130

Goodman's Confidence Intervals of Category 6 Items for First Grade Classes

Florida, Spring 1973

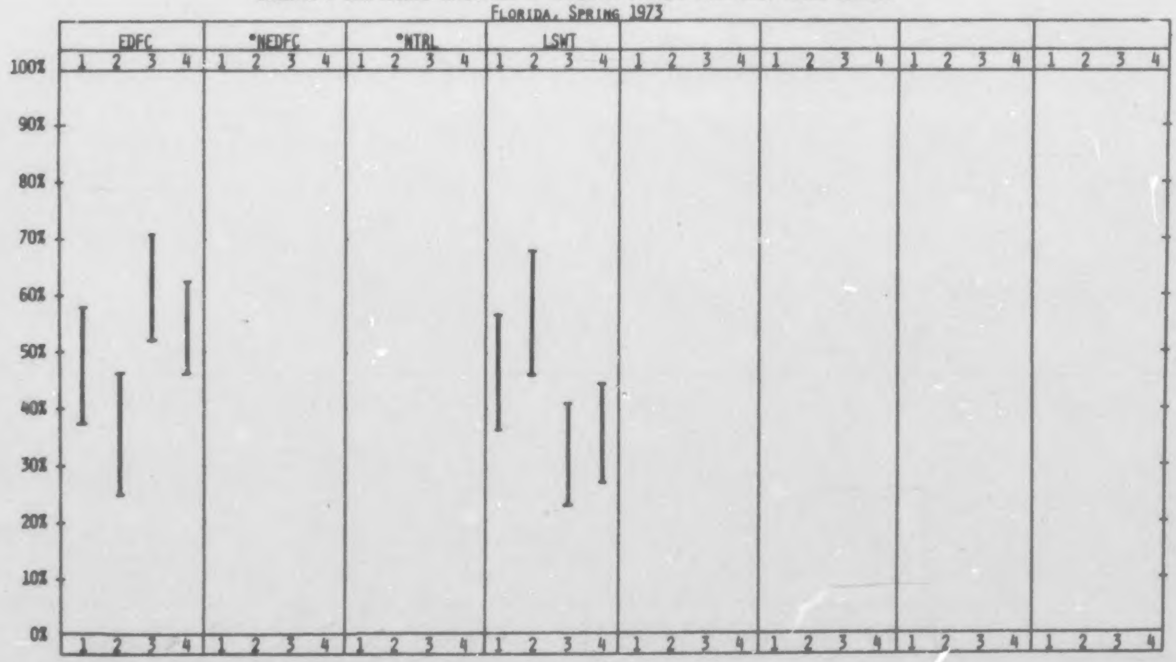


Figure 131

Goodman's Confidence Intervals of Category 9 Items for First Grade Classes
Florida, Spring 1973

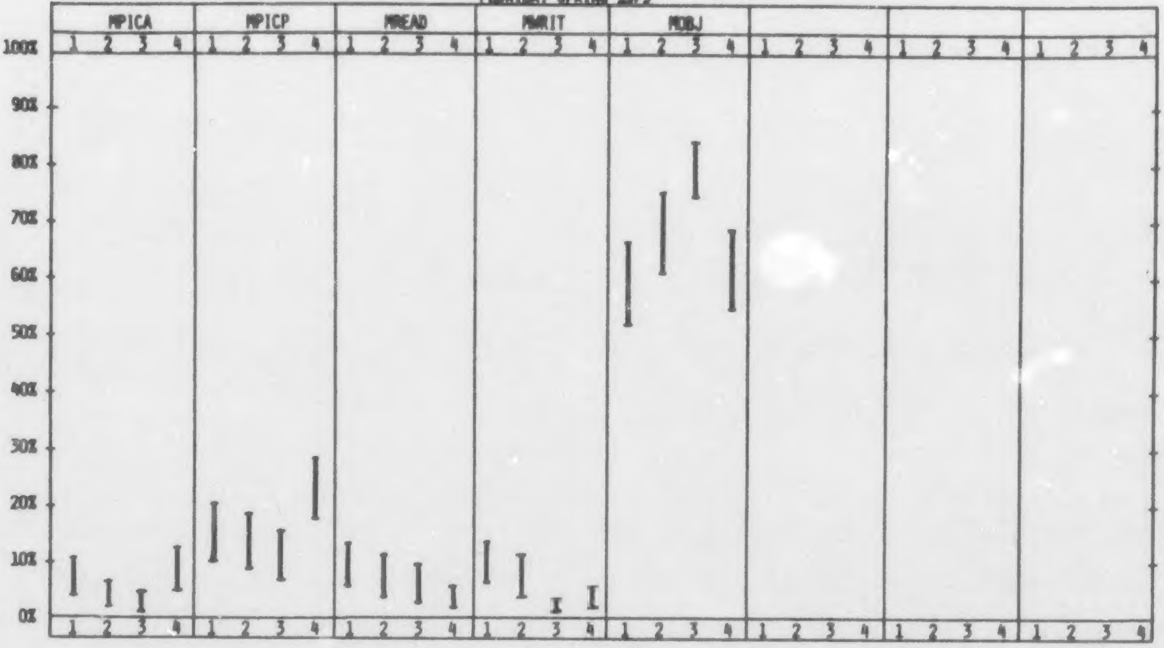


Figure 132

Goodman's Confidence Intervals of Category 12 Items for First Grade Classes
Florida, Spring 1973

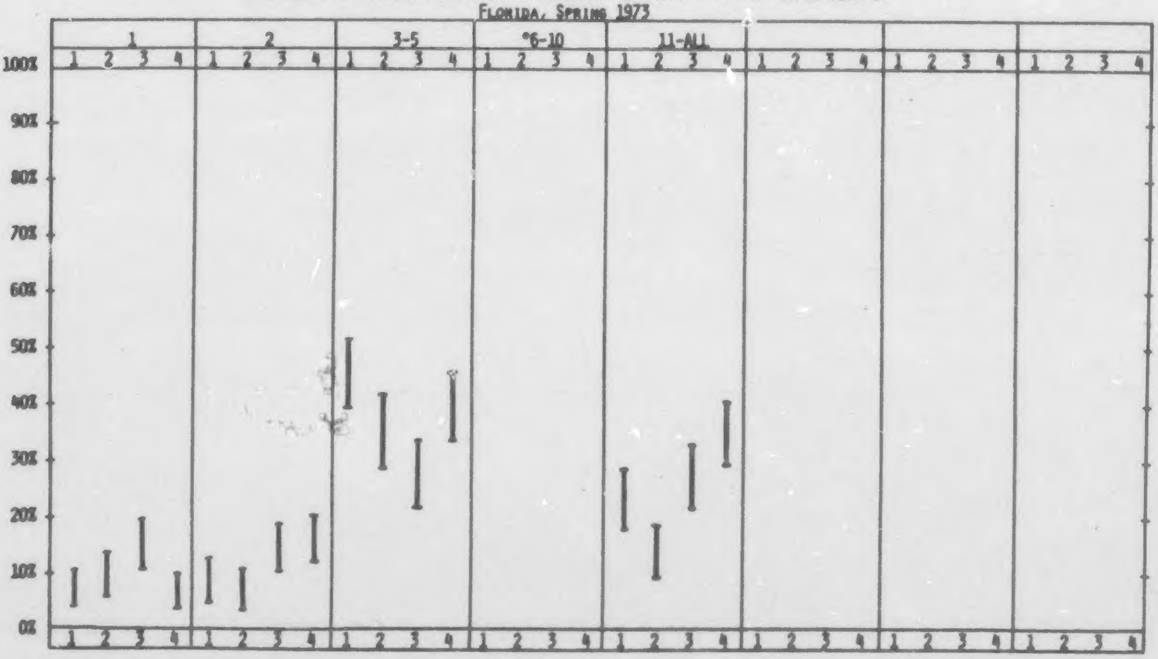


Figure 133
Goodman's Confidence Intervals of Category 15 Items for First Grade Classes
Florida, Spring 1973

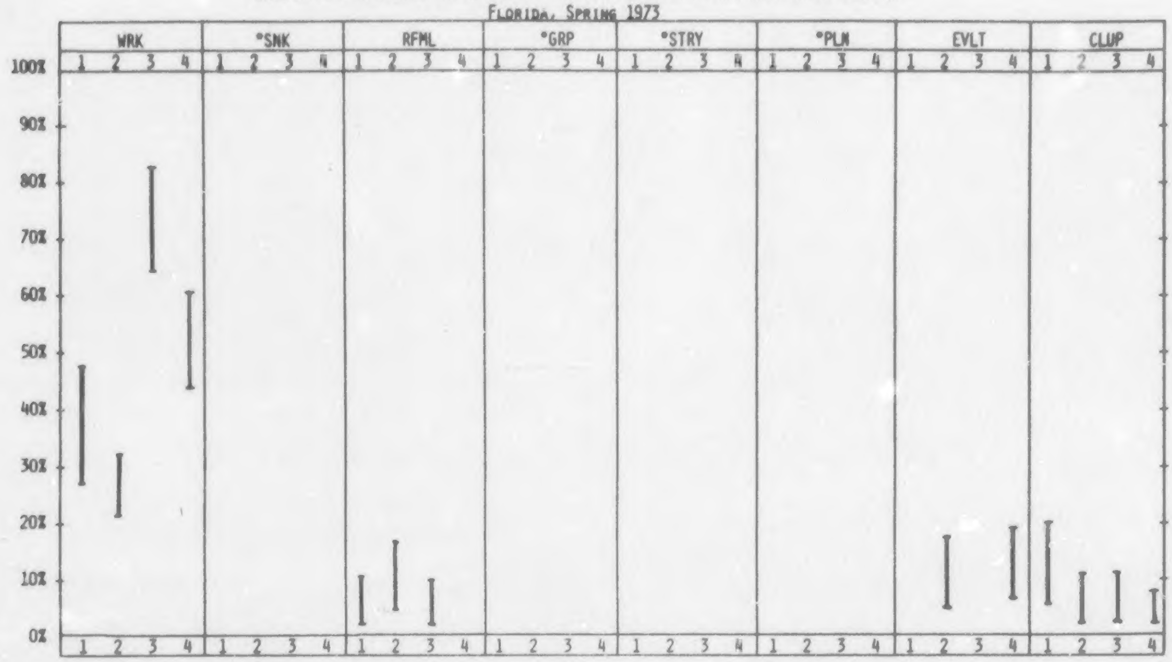
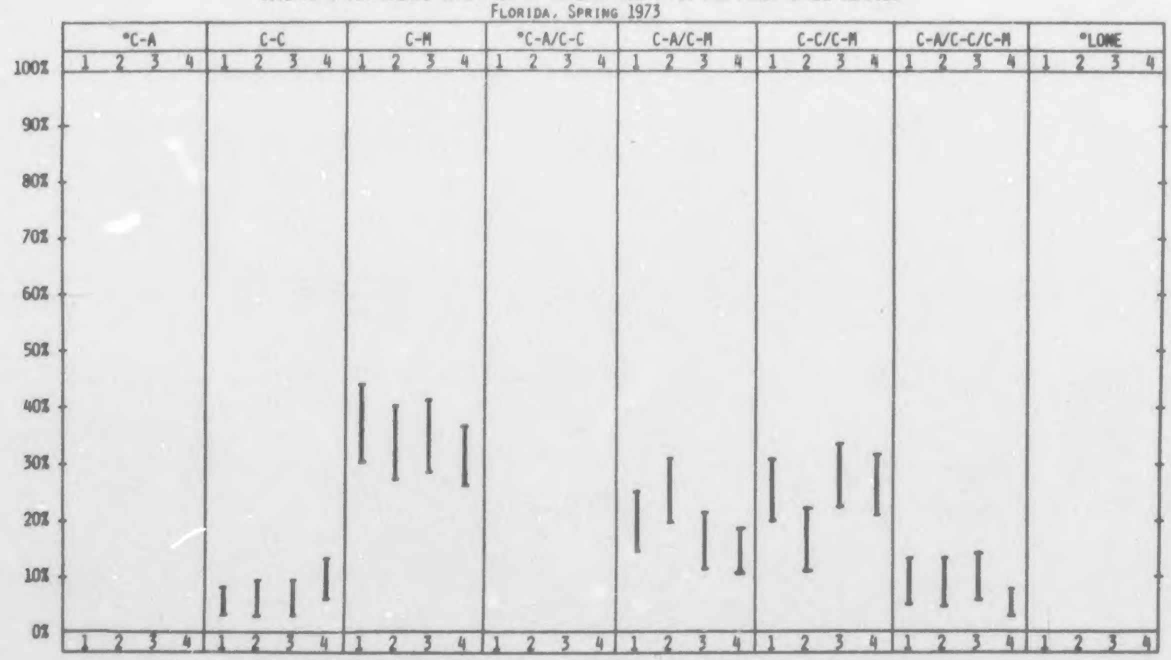


Figure 134
Goodman's Confidence Intervals of Interaction Types for First Grade Classes
Florida, Spring 1973



Spring Comparisons of the Third Grade Classes in Florida

Children in classes 2 and 4 were more autonomous than children in classes 1 and 3: they spent more of their day in self-selected activities (see Figures 135-142).

Children in classes 1 and 2 were more often in large groups of more than ten students and were more often involved in entire class, teacher-structured activities than students in classes 3 and 4. They also read more often than class 4 students.

The comparisons involving group size indicated that class 2 and class 4 students were more often in groups of three to five students than class 1 students. Class 4 students were more often in groups by themselves than class 3 students. Other differences in the kind of material used included: more reading activities in class 2 compared to class 3 and more pictures in class 4 than class 1.

The interaction type varied slightly with the children in class 4 spending more time in child-material interactions than students in classes 2 or 3 and children in class 2 spending more time in child-child/child-material interactions than class 4 students.

The curriculum assistant rated the classrooms similar in terms of implementation. The field consultant rated class 1 as being the best implemented and class 4 being the least well implemented. The children in the better-rated class were more often in groups of more than ten and were more frequently involved in reading activities. The adults in this class gave directions or instructions to the entire class more frequently than the adults in the less well-rated class. The students in the lower-rated class spent more time in self-selected activities, were more often in groups of three to five students, and used picture materials more often.

Figure 135

Goodman's Confidence Intervals of Category 1 Items for Third Grade Classes
Florida, Spring 1973

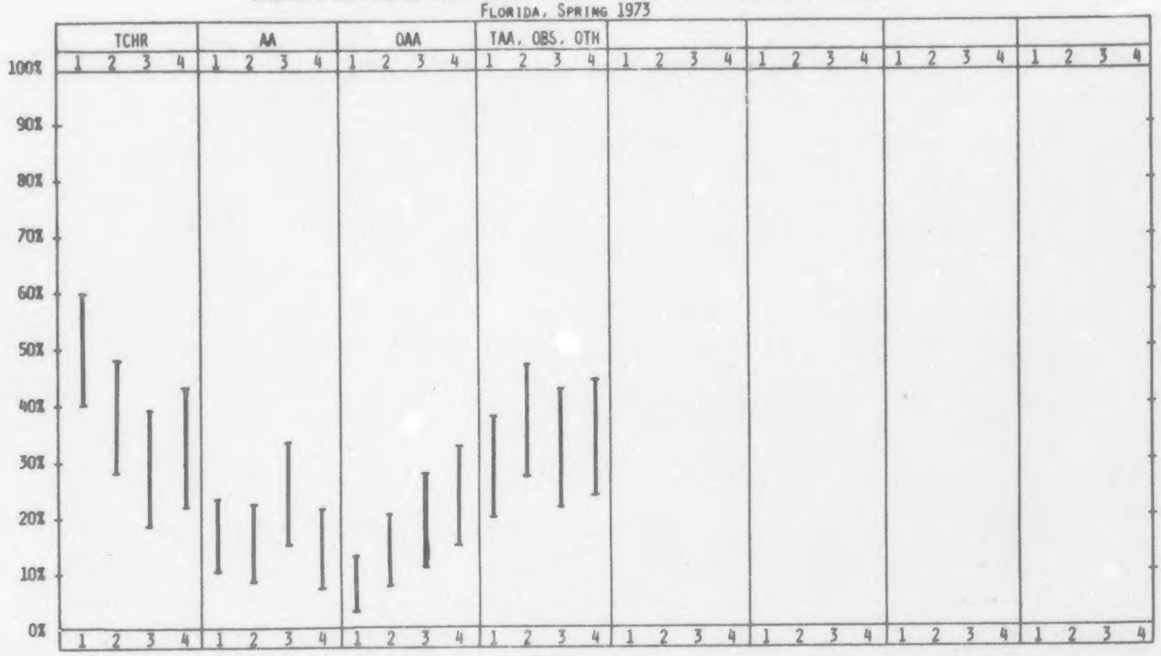
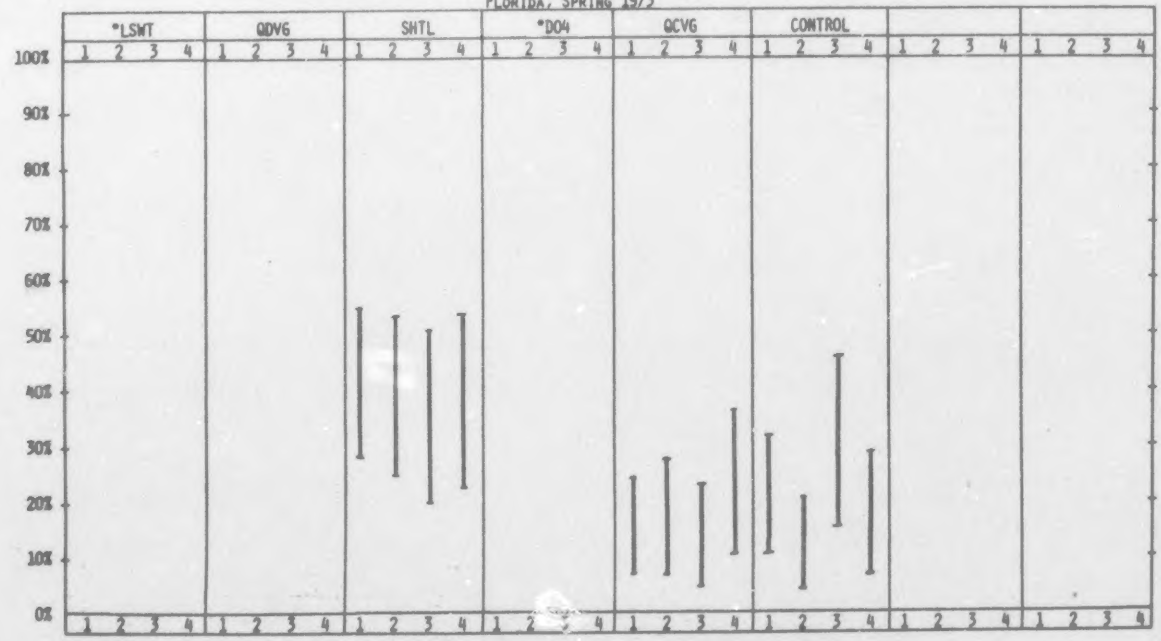


Figure 136

Goodman's Confidence Intervals of Category 4 Items for Third Grade Classes
Florida, Spring 1973



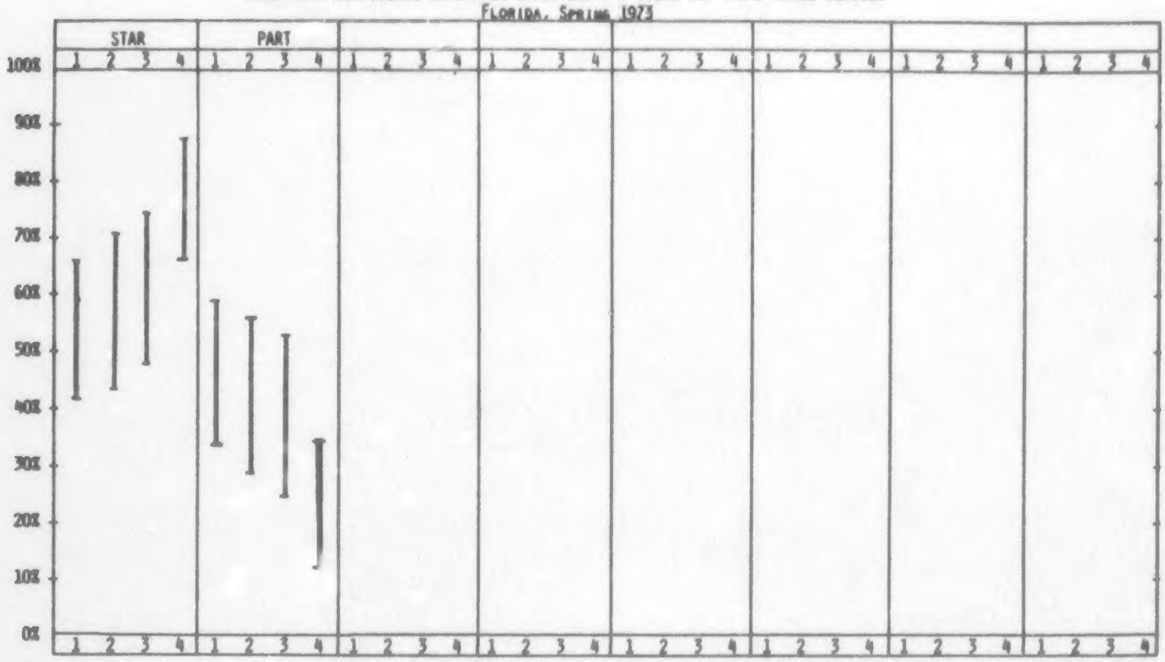


Figure 137
Goodman's Confidence Intervals of Category 5 Items for Third Grade Classes
Florida, Spring 1973

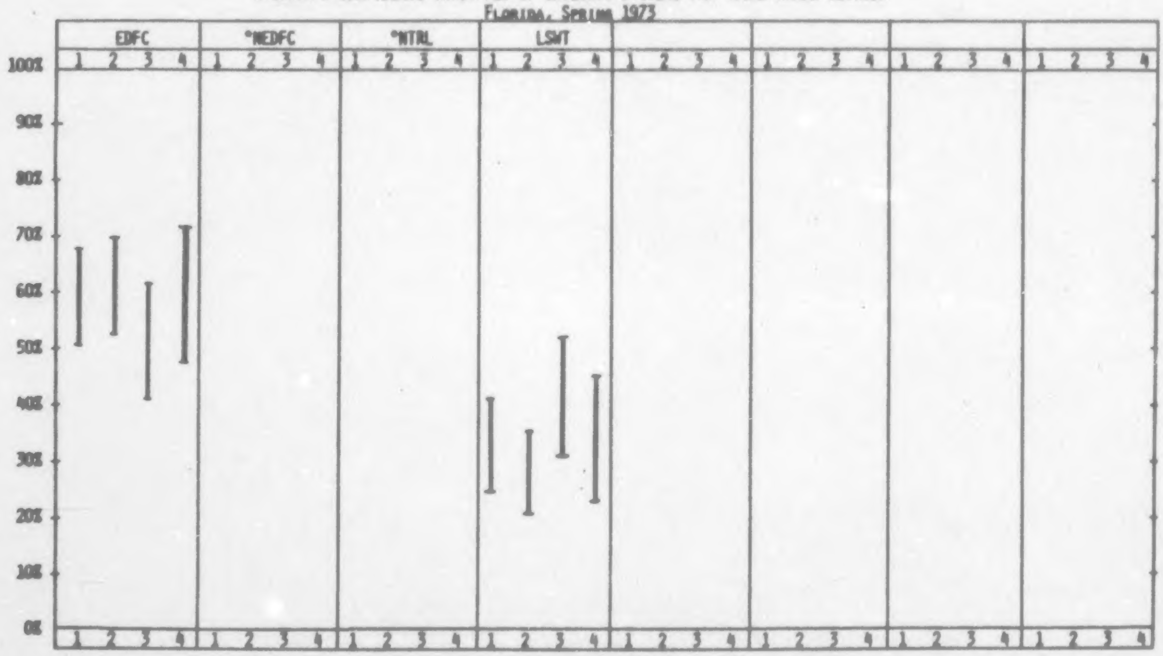


Figure 138
Goodman's Confidence Intervals of Category 6 Items for Third Grade Classes
Florida, Spring 1973

Figure 139
Goodman's Confidence Intervals of Category 9 Items for Third Grade Classes
Florida, Spring 1973

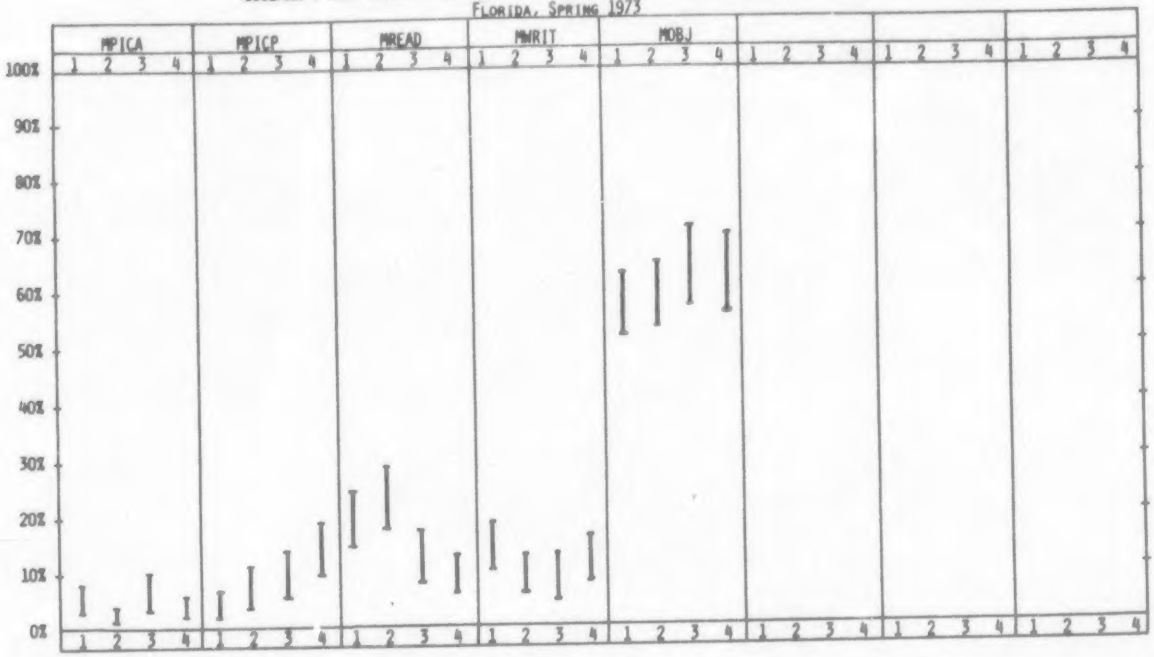


Figure 140
Goodman's Confidence Intervals of Category 12 Items for Third Grade Classes
Florida, Spring 1973

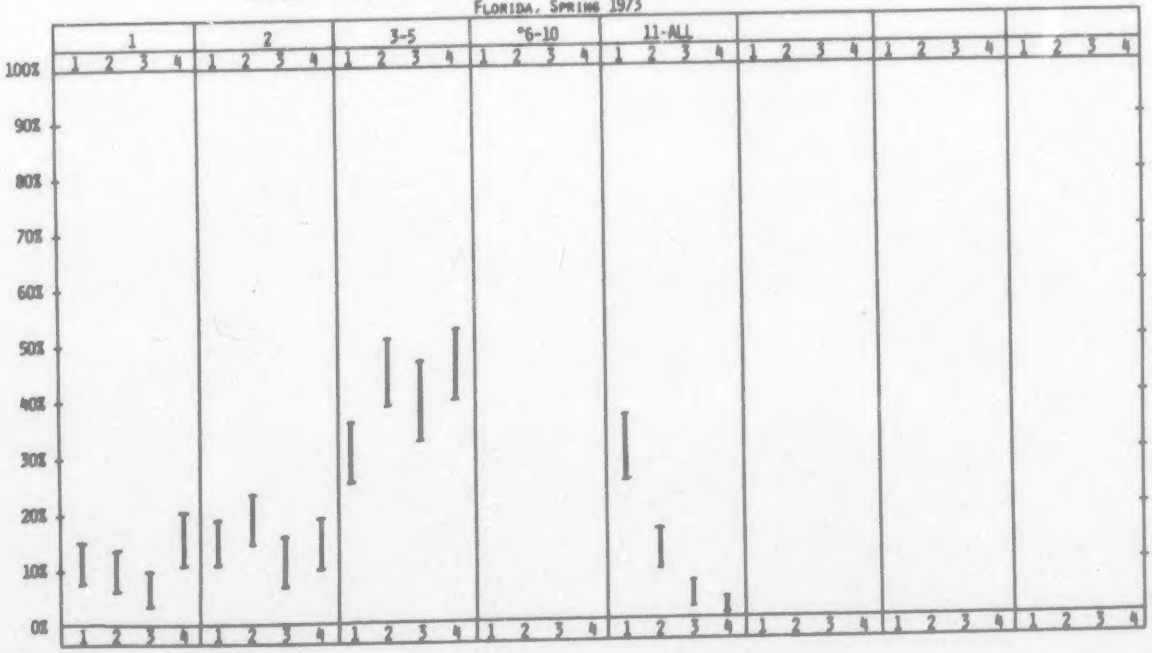


Figure 141
Goodman's Confidence Intervals of Category 15 Items for Third Grade Classes
Florida, Spring 1973

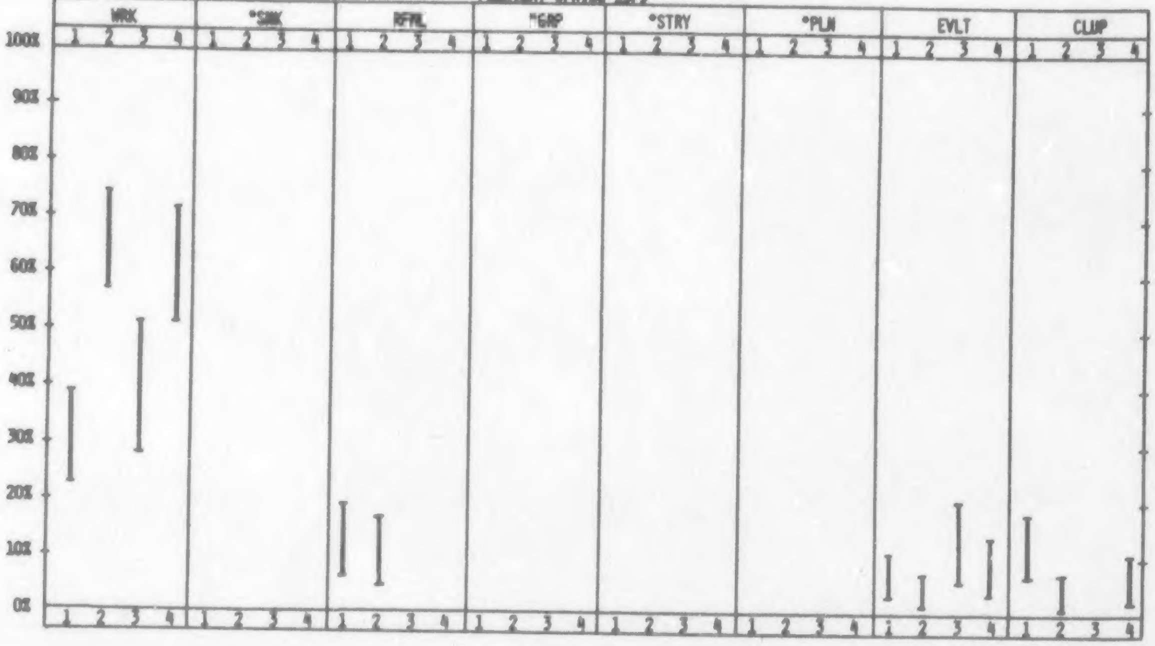
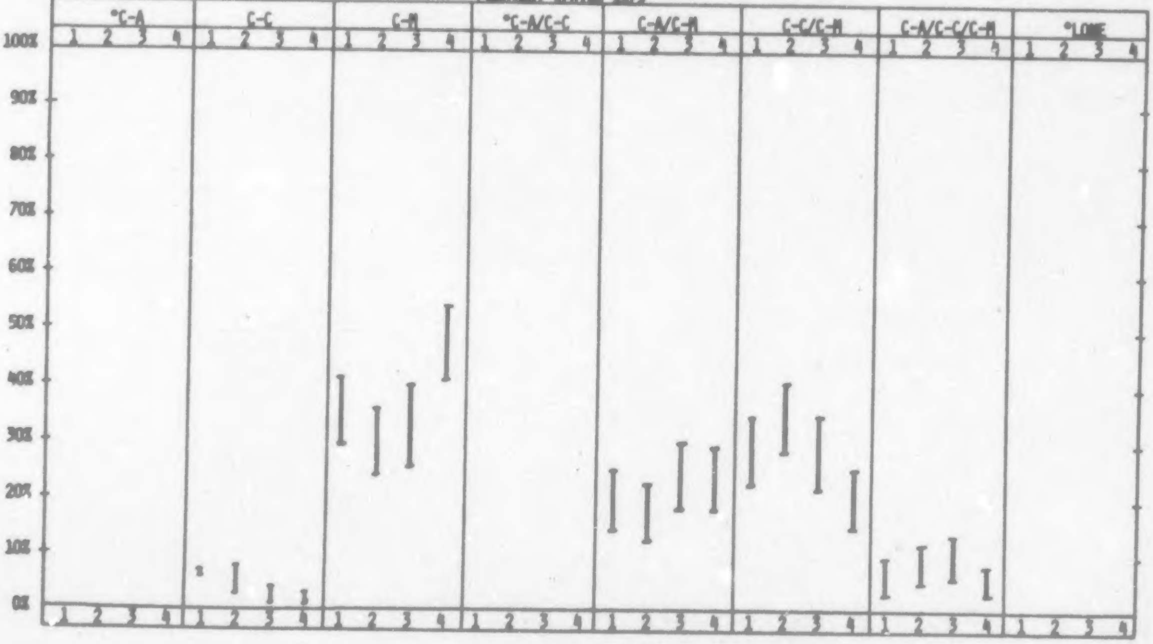


Figure 142
Goodman's Confidence Intervals of Interaction Types for Third Grade Classes
Florida, Spring 1973



Spring Comparisons of the First Grade Classes in New York

The first grade classes in this center did not differ in regard to child-autonomy, teacher-directiveness, material usage and interaction type. Group size contributed to the classroom variance (see Figures 143-150).

The children in classes 1 and 4 were less frequently in either large groups of more than ten students or in small groups of one or two children and were more frequently in groups of intermediate size (3-5). The children in classes 2 and 3 differed only slightly in the number of students in their group. Class 2 children compared to children in classes 1 and 4 were more often in large groups (10+) and class 3 children compared to children in classes 1 and 4 were less often in groups containing three to five students. Class 3 students were more often in groups containing only one or two students than class 2 and class 4 students.

Classroom ratings made by the curriculum assistants showed that the Cognitive Curriculum was being implemented to the same extent in all classes. Interaction types and the kind of materials used did not differ across the classes. The group size accounted for much of the variance among the classes.

Ratings made by the field consultant showed class 4 as the best implemented and class 3 as the least well implemented. These two classes differed with respect to group size. The children in the better-rated class were more often in groups containing three to five students and the children in the lower-rated class were more often in groups by themselves or with one other pupil.

Figure 143
Goodman's Confidence Intervals of Category 1 Items for First Grade Classes
New York, Spring 1973

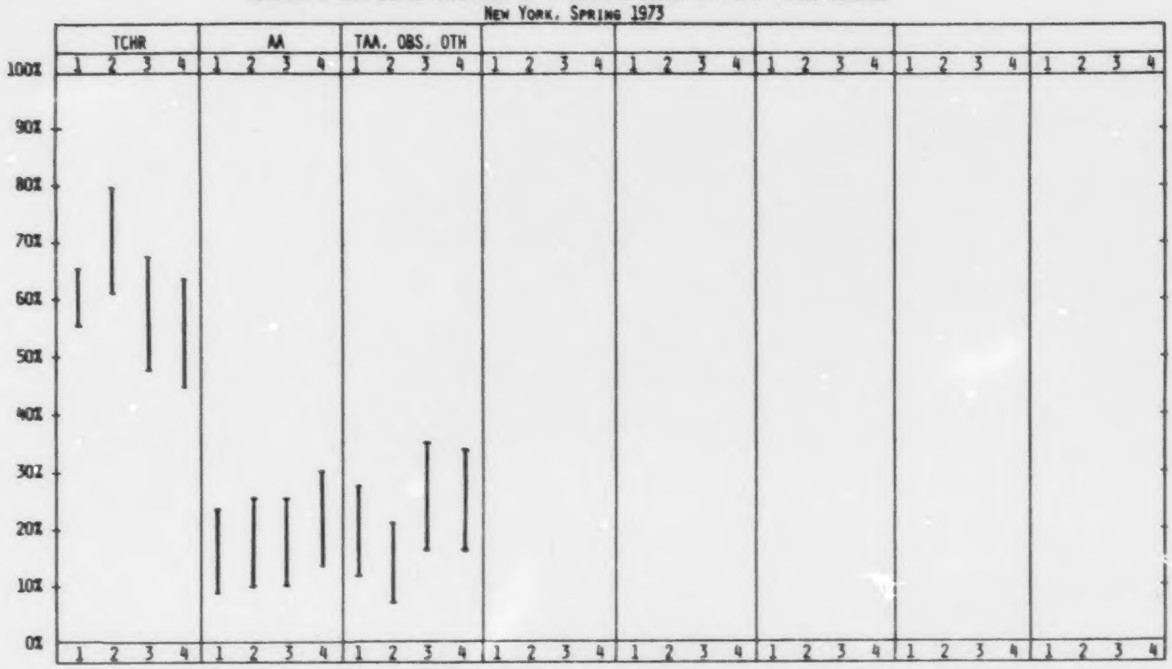


Figure 144
Goodman's Confidence Intervals of Category 4 Items for First Grade Classes
New York, Spring 1973

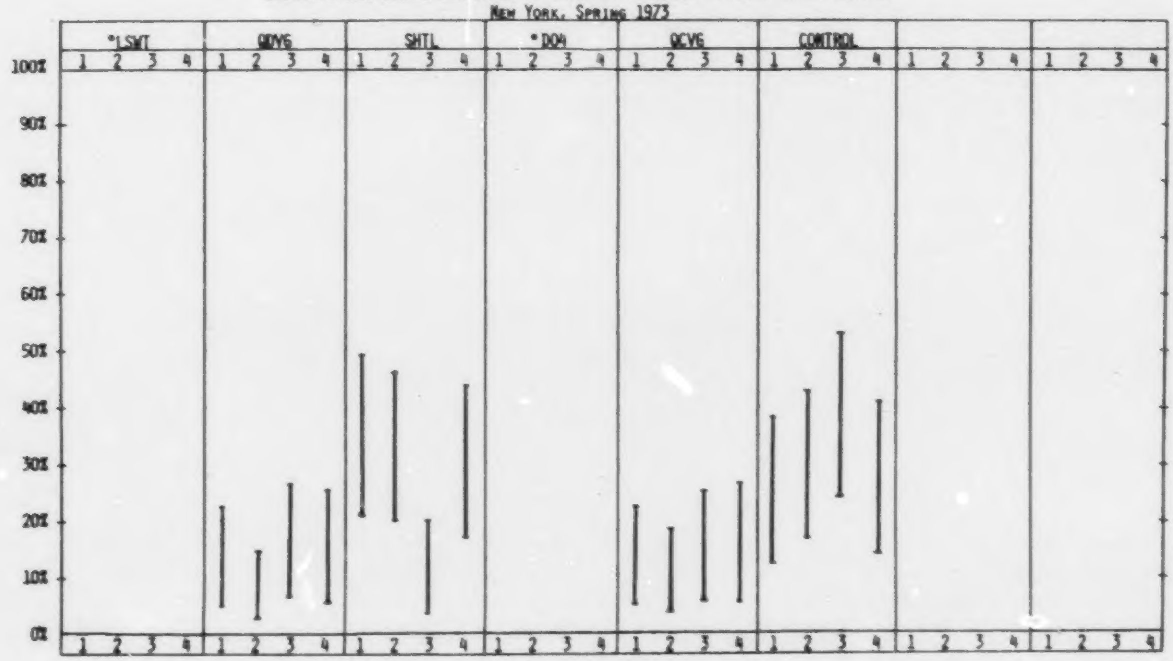


Figure 145
Goodman's Confidence Intervals of Category 5 Items for First Grade Classes
New York, Spring 1973

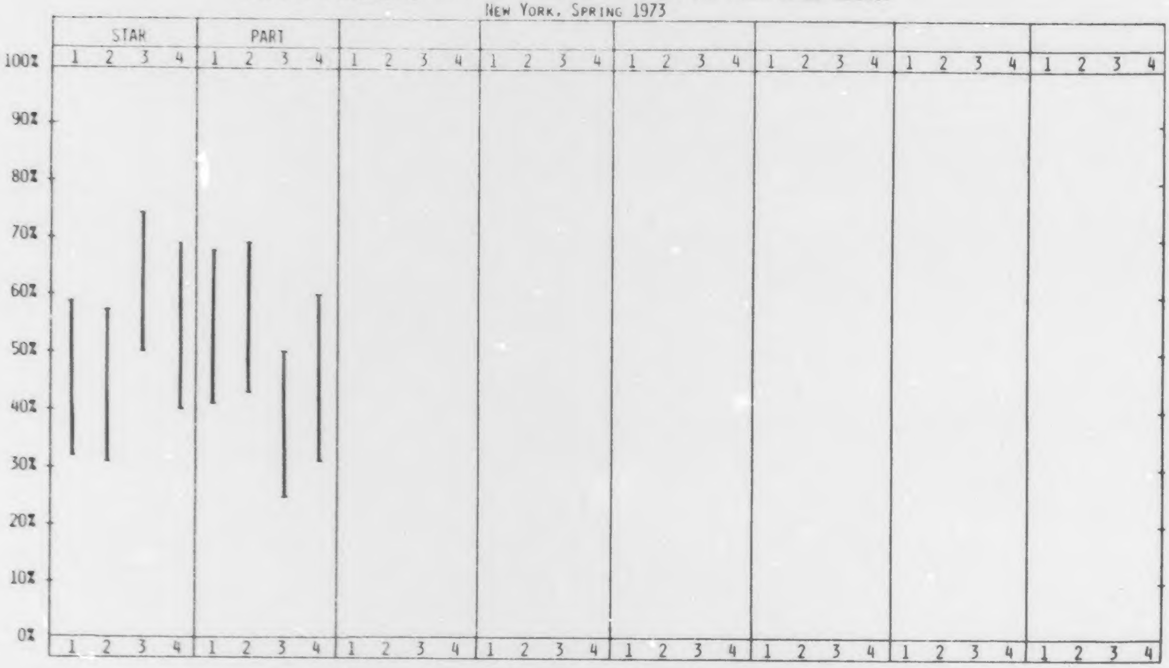


Figure 146
Goodman's Confidence Intervals of Category 6 Items for First Grade Classes
New York, Spring 1973

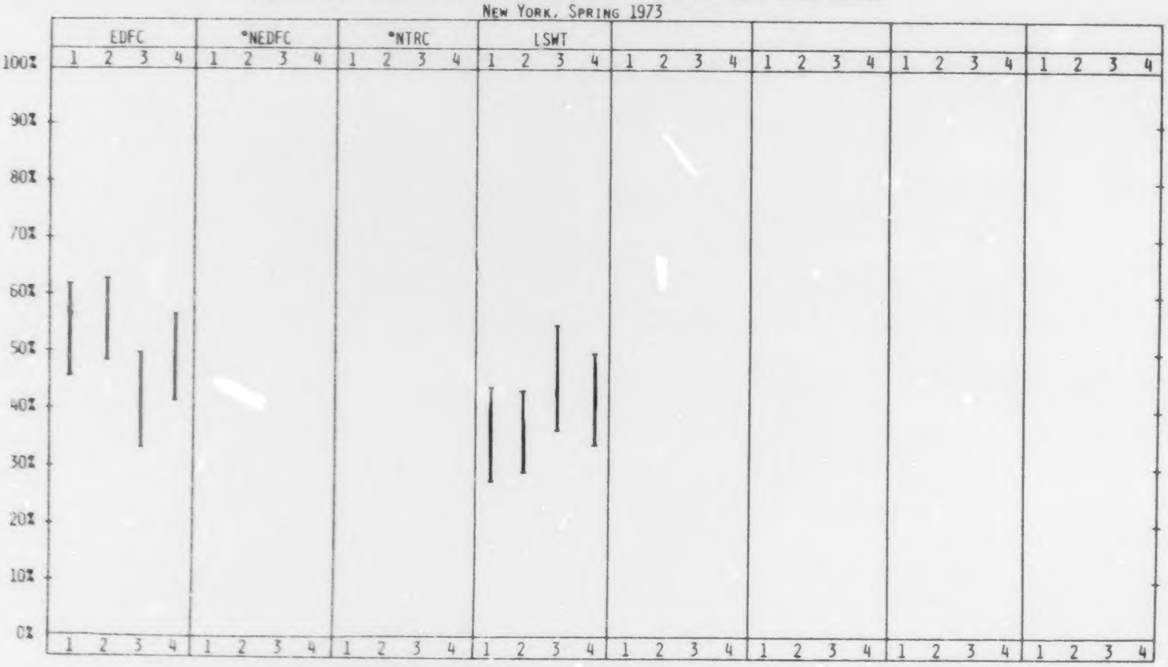


Figure 147
Goodman's Confidence Intervals of Category 9 Items for First Grade Classes
New York, Spring 1973

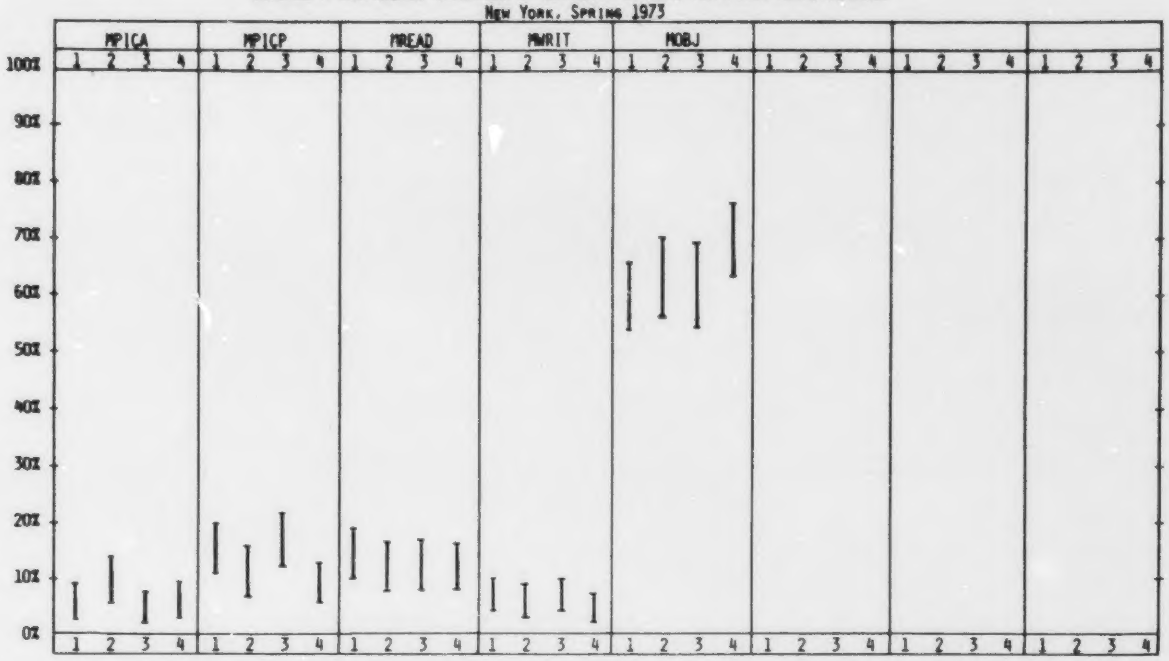


Figure 148
Goodman's Confidence Intervals of Category 12 Items for First Grade Classes
New York, Spring 1973

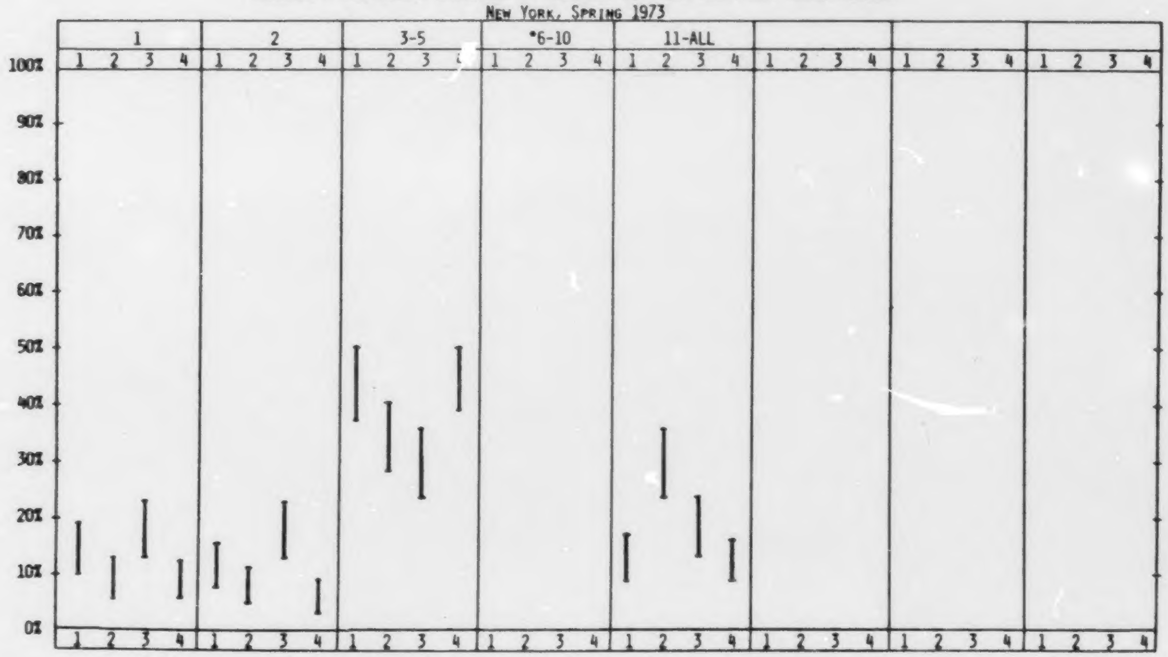


Figure 149
Goodman's Confidence Intervals of Category 15 Items for First Grade Classes
New York, Spring 1973

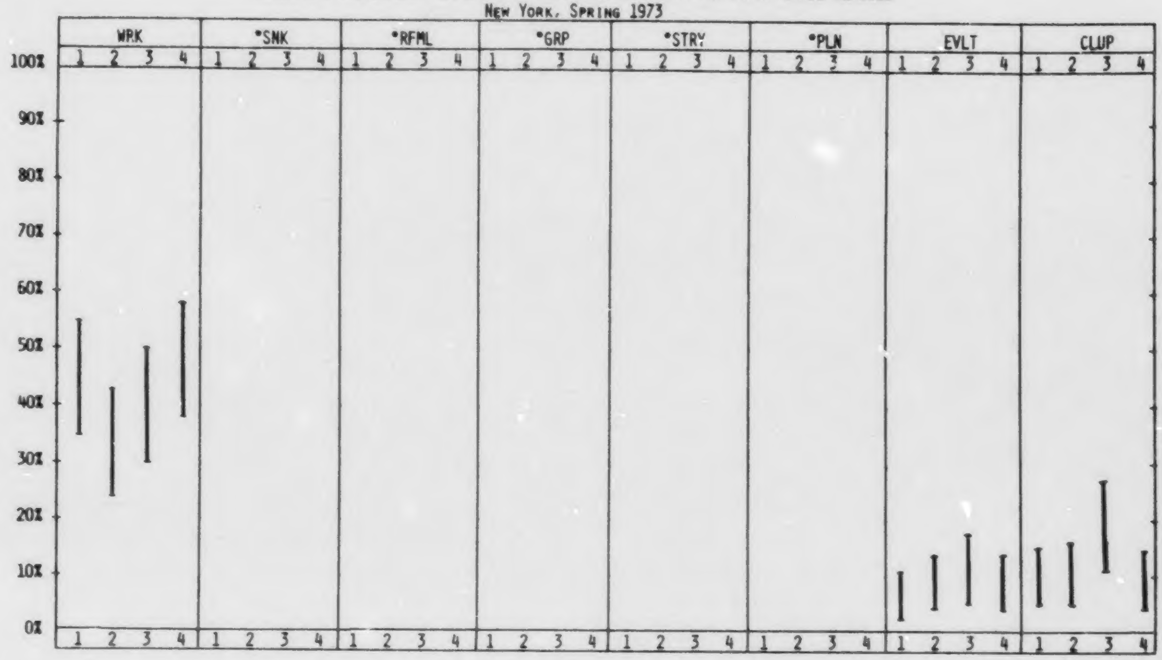
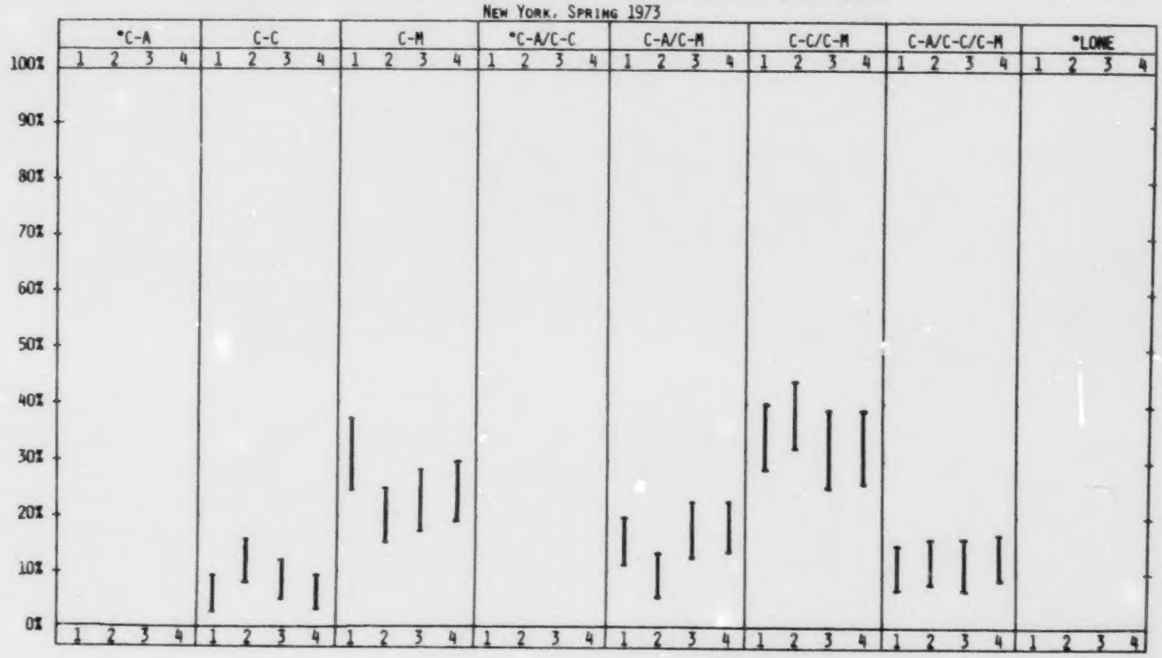


Figure 150
Goodman's Confidence Intervals of Interaction Types for First Grade Classes
New York, Spring 1973



Spring Comparisons of the Third Grade Classes in New York

These four classes differed in the amount of child-autonomy, teacher-directiveness, group size and kind of materials used. The interaction type did not vary across the classes (see Figures 151-158).

Class 4 students were more often in small groups of three to five students than other students and spent a larger part of their day in activities of their interest than students in classes 1 and 3.

Classes 2 and 3 differed in the kinds of materials used, group size and the amount of large group, teacher-structured activities. Class 2 students used more object materials, were involved in reading activities less often and were more often in groups with one other student than class 3 students. Compared to other students they were less often in situations in which the adult was giving directions or instructions to the entire class.

Class 1 and class 3 comparisons showed that students in class 1 were more often in groups with one other student and were more frequently involved in picture-making activities.

The best implemented class in this center, according to the curriculum assistant, was class 3. Class 1 was rated as the least well implemented. Group size, material type and amount of evaluation time differentiated these two classes. Children in the higher-rated class were less often in groups with one other student and were less often involved in picture-making activities.

FIGURE 151
GOODMAN'S CONFIDENCE INTERVALS OF CATEGORY 1 ITEMS FOR THIRD GRADE CLASSES
NEW YORK, SPRING 1973

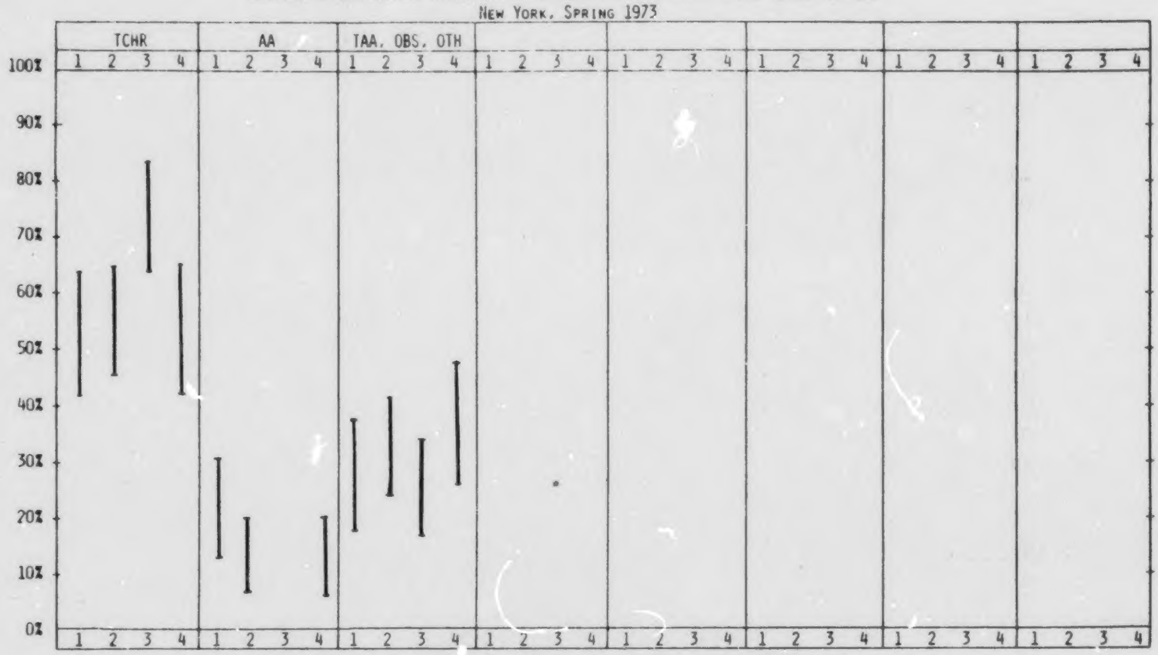


FIGURE 152
GOODMAN'S CONFIDENCE INTERVALS OF CATEGORY 4 ITEMS FOR THIRD GRADE CLASSES
NEW YORK, SPRING 1973

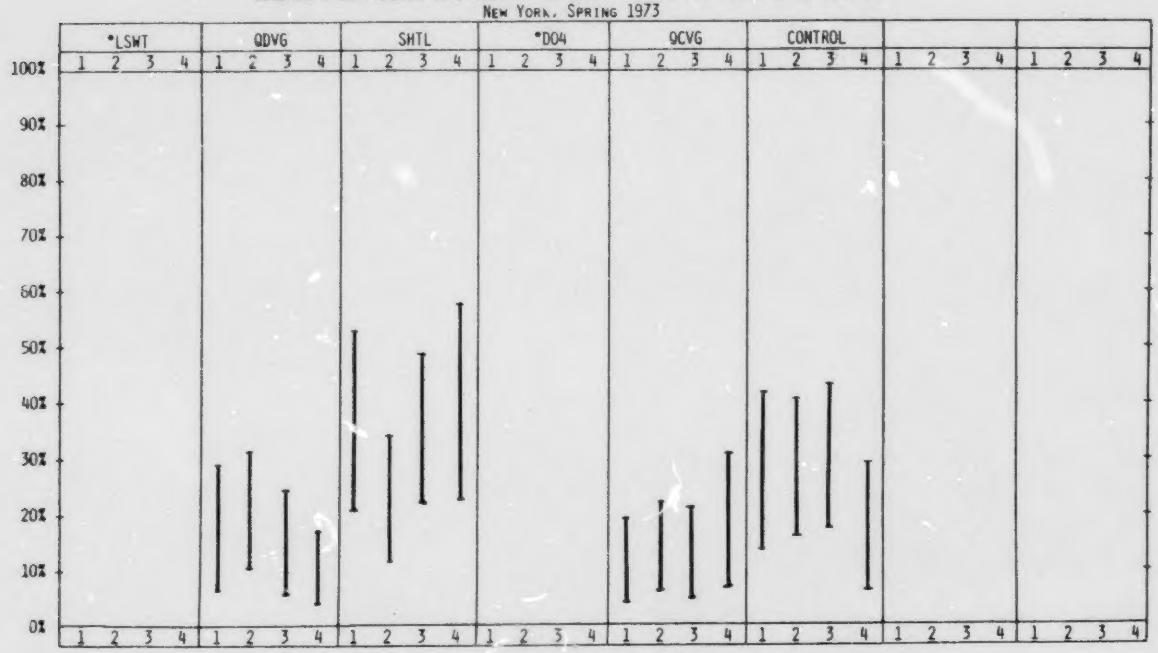


Figure 153

Goodman's Confidence Intervals of Category 5 Items for Third Grade Classes
New York, Spring 1973

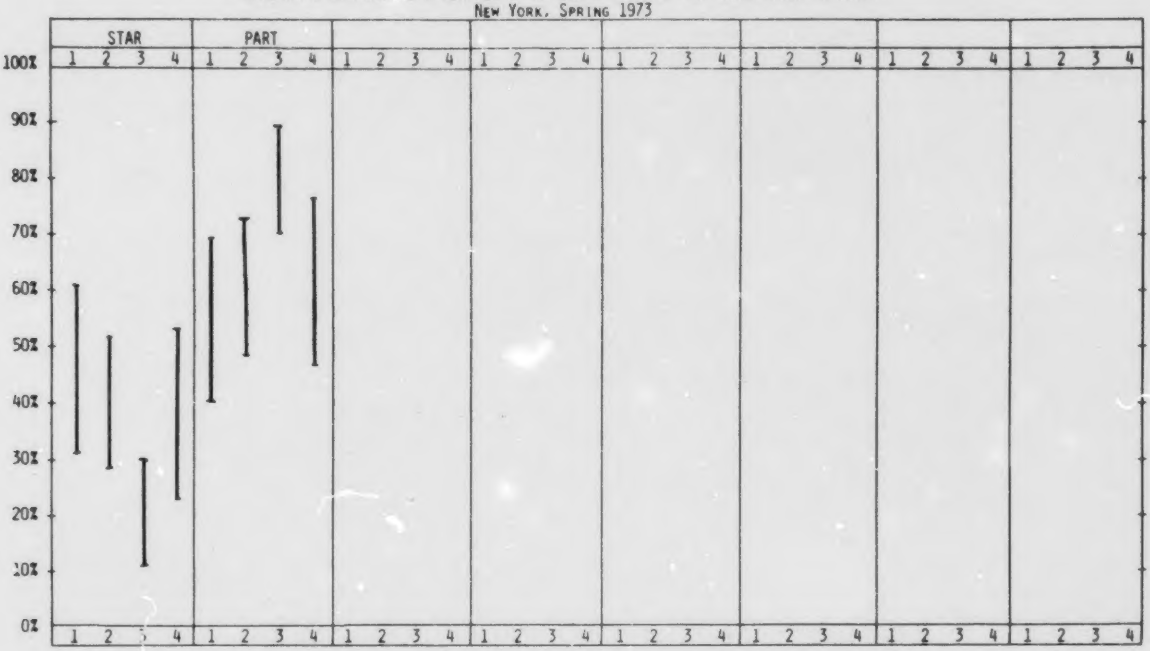


Figure 154

Goodman's Confidence Intervals of Category 6 Items for Third Grade Classes
New York, Spring 1973

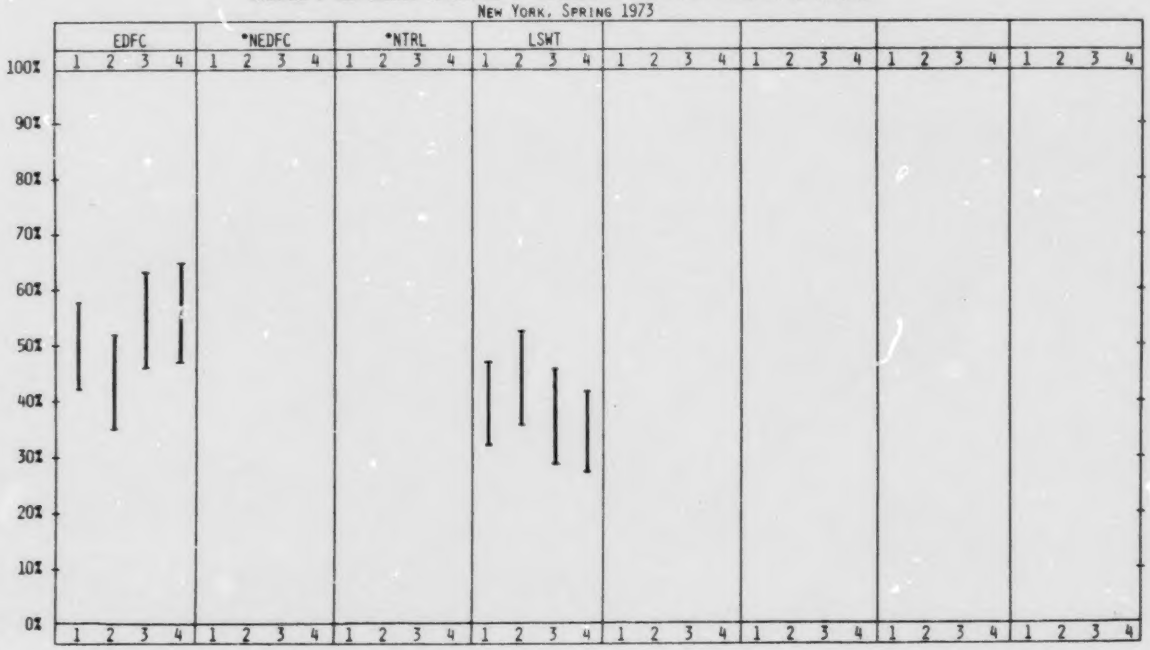


Figure 155
Goodman's Confidence Intervals of Category 9 Items for Third Grade Classes
New York, Spring 1973

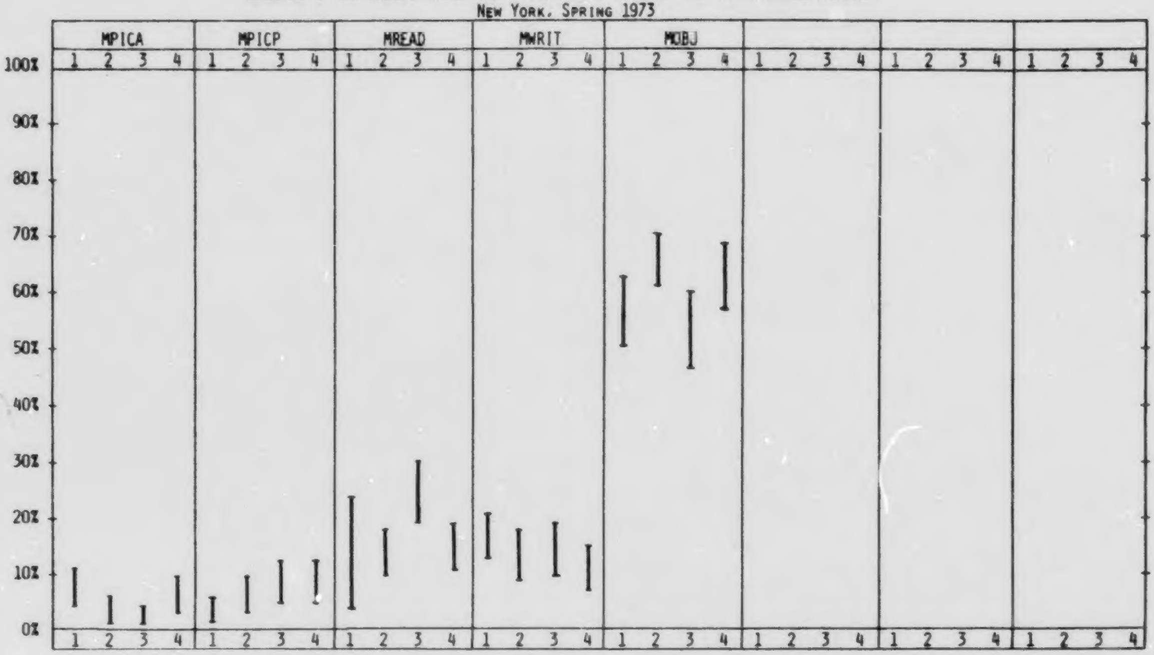


Figure 156
Goodman's Confidence Intervals of Category 12 Items for Third Grade Classes
New York, Spring 1973

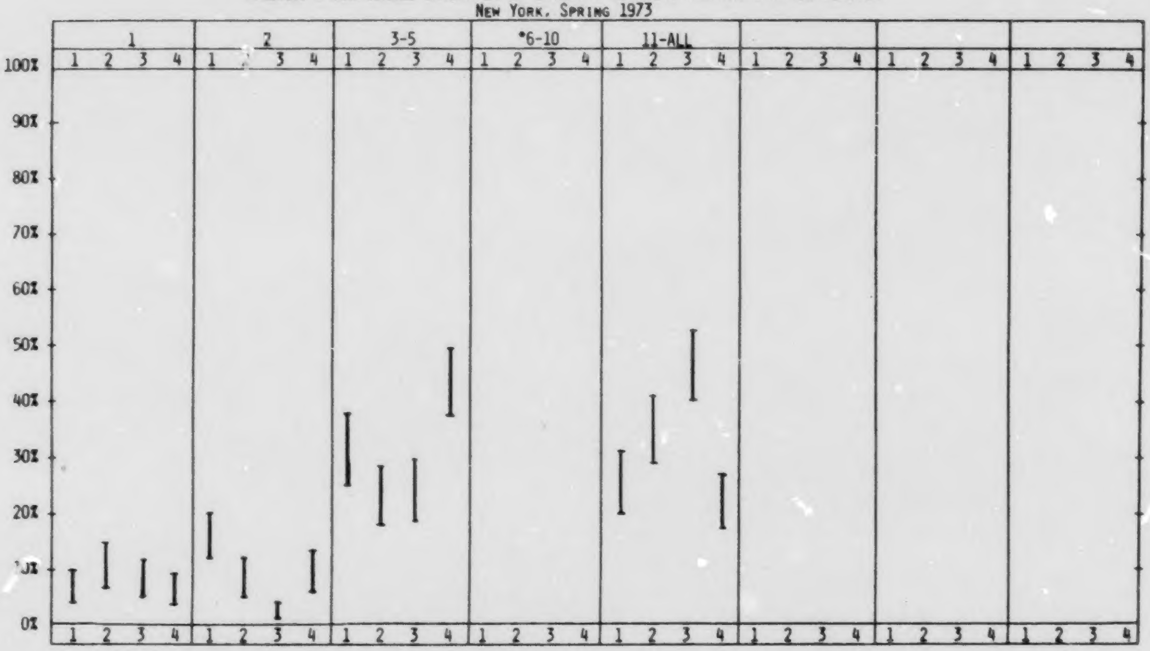


Figure 157

Goodman's Confidence Intervals of Category 15 Items for Third Grade Classes New York, Spring 1973

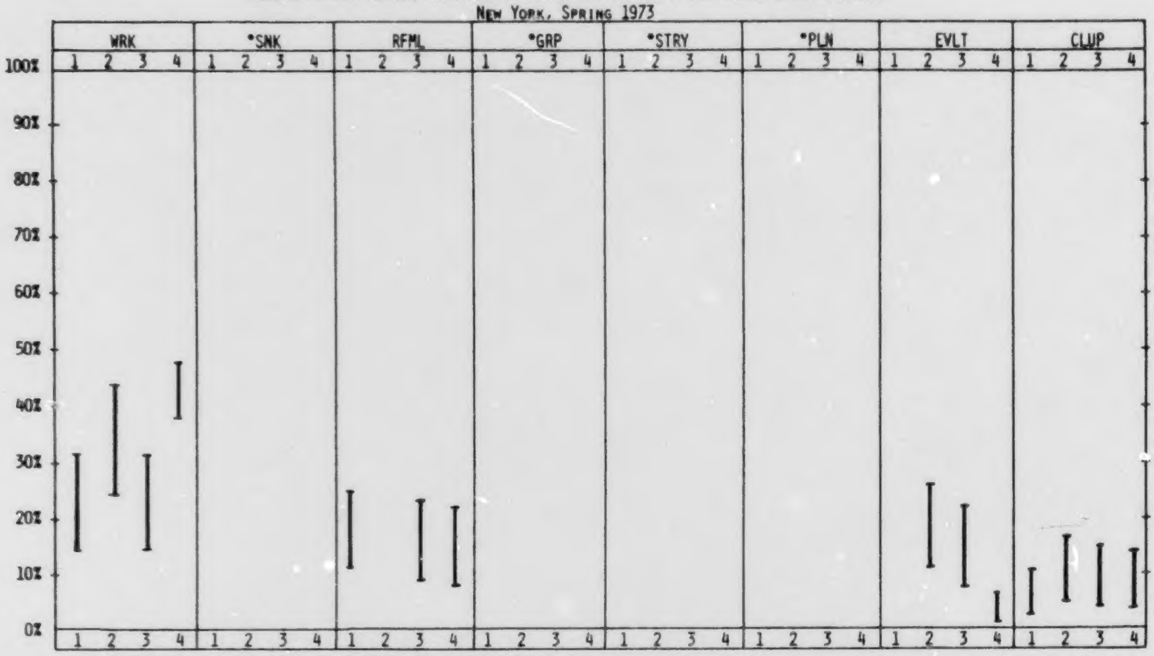
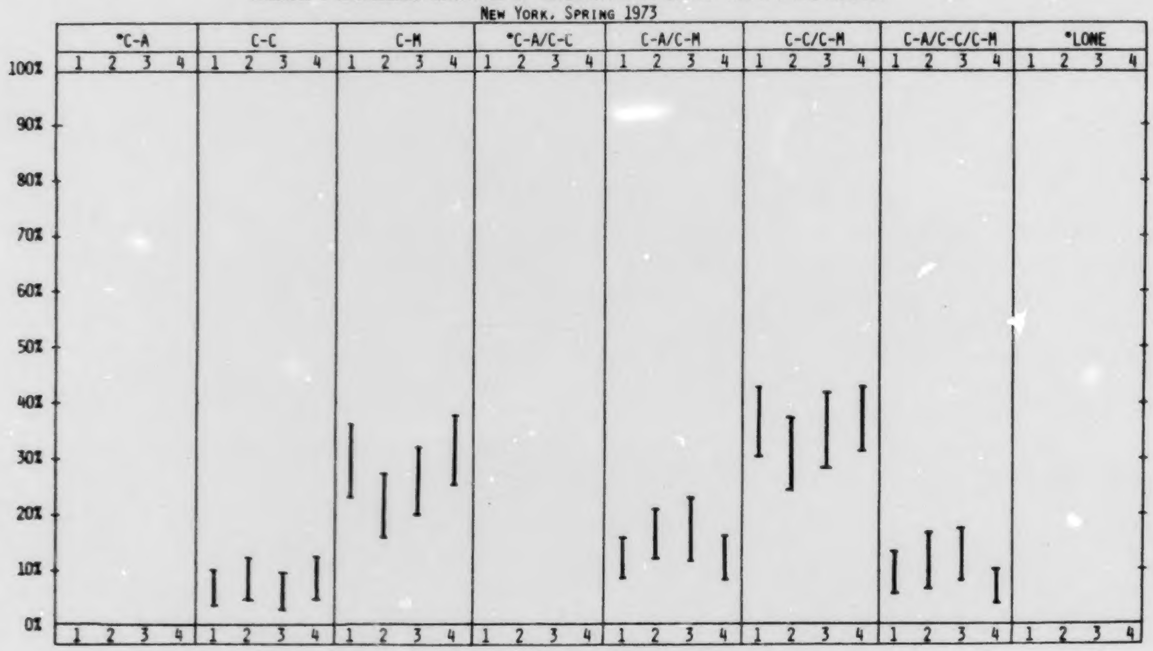


Figure 158

Goodman's Confidence Intervals of Interaction Types for Third Grade Classes New York, Spring 1973



Spring Comparisons of the First Grades in All Centers

Students in Florida and New York, compared to students in Trinidad and Greeley, spent more time in activities of their choice and were more often in groups of more than ten students and in groups of one or two students (see Figures 159-168).

Trinidad differed from the other centers with respect to the type of materials used and group size. The first graders in this center were more often in groups containing three to five students, were more often involved in reading activities and used object materials less frequently than the first graders in the other centers.

Florida and New York differed slightly with respect to group size and material usage. Florida first graders were more often in groups containing more than ten students and New York first graders were engaged in reading activities more often.

Most of the interaction type variance can be attributed to New York. Interaction type did not vary between Greeley and Florida. Child-adult/child-material interactions occurred more frequently in Trinidad than in Florida and child-material interactions occurred more often in Trinidad than in Greeley. Child-child interactions occurred more often in Greeley than in Trinidad.

New York first graders seemed to be more often involved in interactions involving both peers and materials and less often involved in interactions involving both adults and materials or just materials. The first graders in this center were more frequently involved in child-child/child-material interactions than other students, were more frequently involved in child-adult/child-child/child-material interactions than Trinidad or Greeley students, were less often involved in child-adult/child-material interactions than Trinidad or Greeley students and were less often involved in child-material interactions than Florida or Trinidad first graders. New York first graders also interacted with their peers more frequently than Trinidad students did.

Figure 159

Goodman's Confidence Intervals of Category 1 Items for First Grade Classes

All Centers, Spring 1973

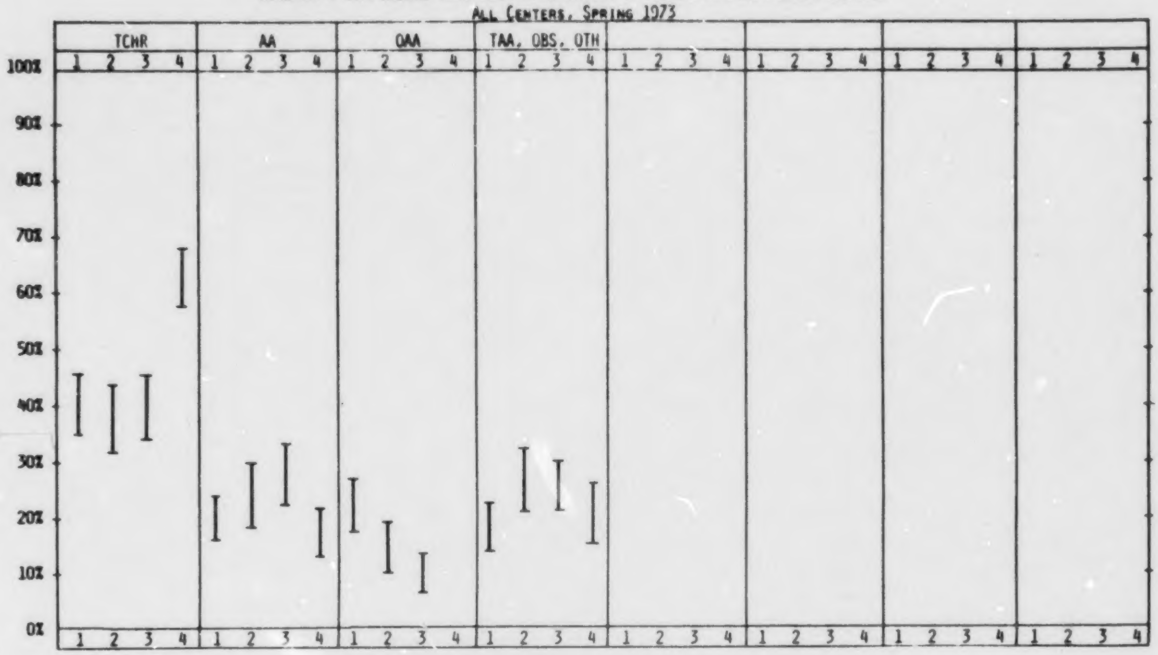


Figure 160

Goodman's Confidence Intervals of Category 2 Items for First Grade Classes

All Centers, Spring 1973

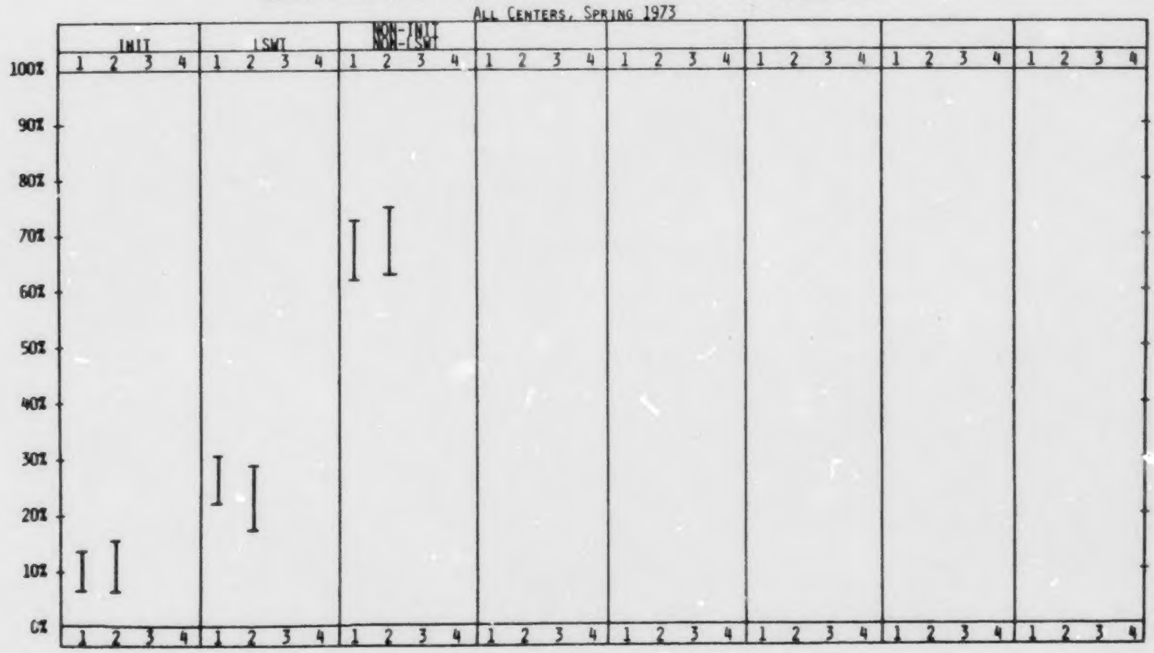


FIGURE 161

GOODMAN'S CONFIDENCE INTERVALS OF CATEGORY 4 ITEMS FOR FIRST GRADE CLASSES

ALL CENTERS, SPRING 1973

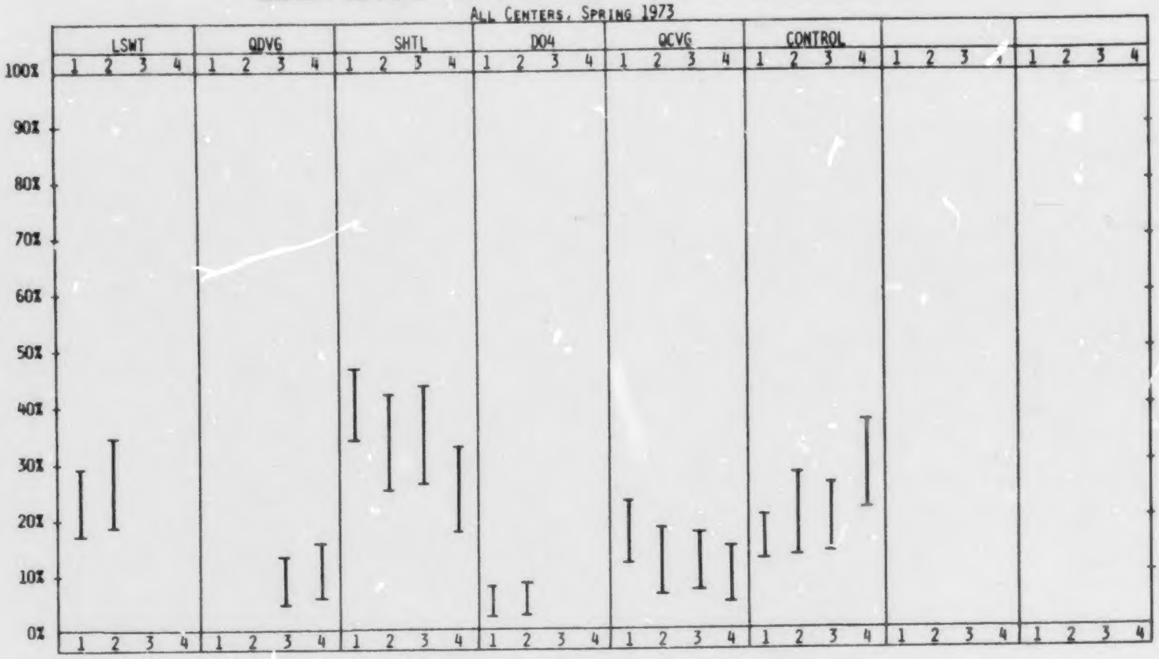


FIGURE 162

GOODMAN'S CONFIDENCE INTERVALS OF CATEGORY 5 ITEMS FOR FIRST GRADE CLASSES

ALL CENTERS, SPRING 1973

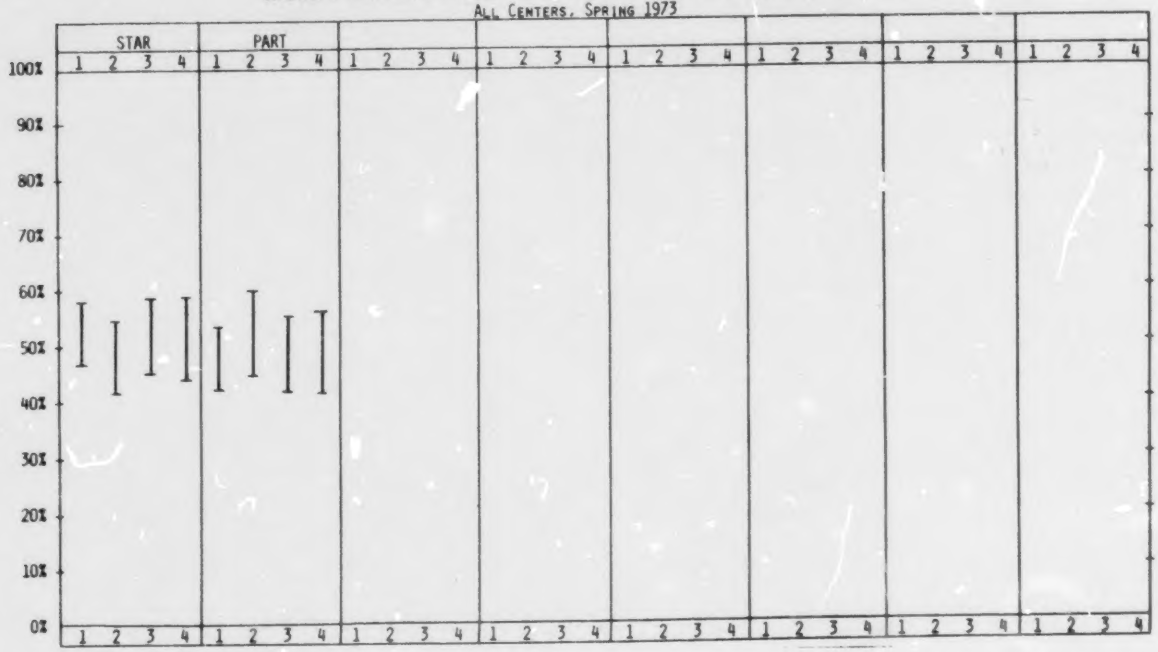


Figure 163

Goodman's Confidence Intervals of Category 6 Items for First Grade Classes

All Centers, Spring 1973

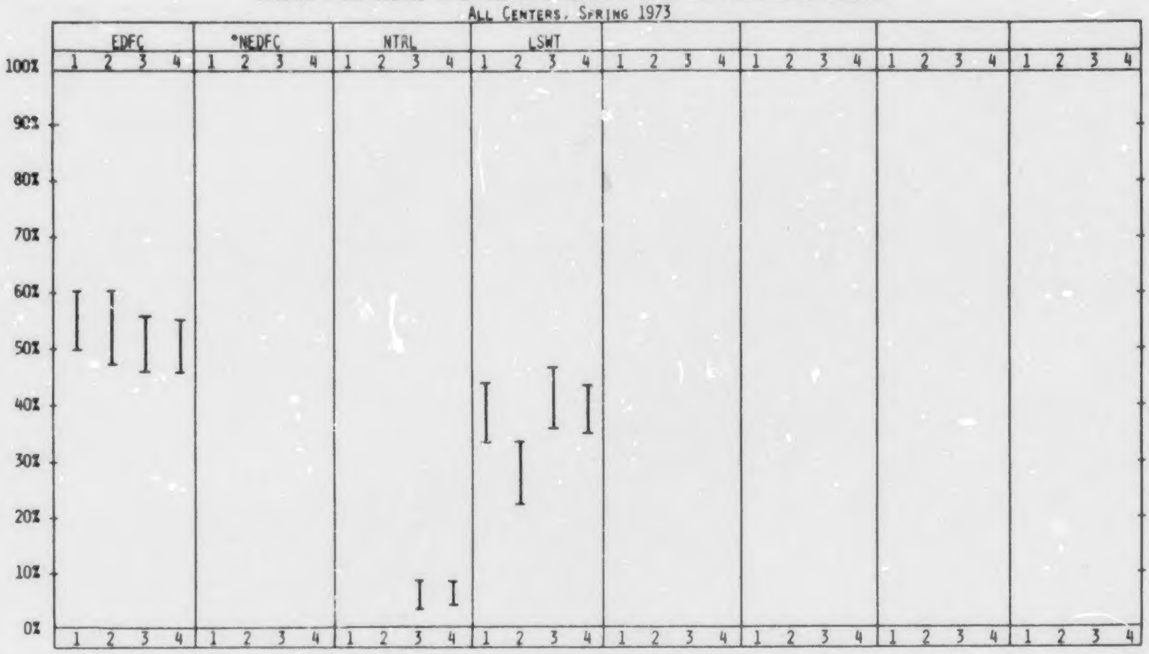


Figure 164

Goodman's Confidence Intervals of Category 7 Items for First Grade Classes

All Centers, Spring 1973

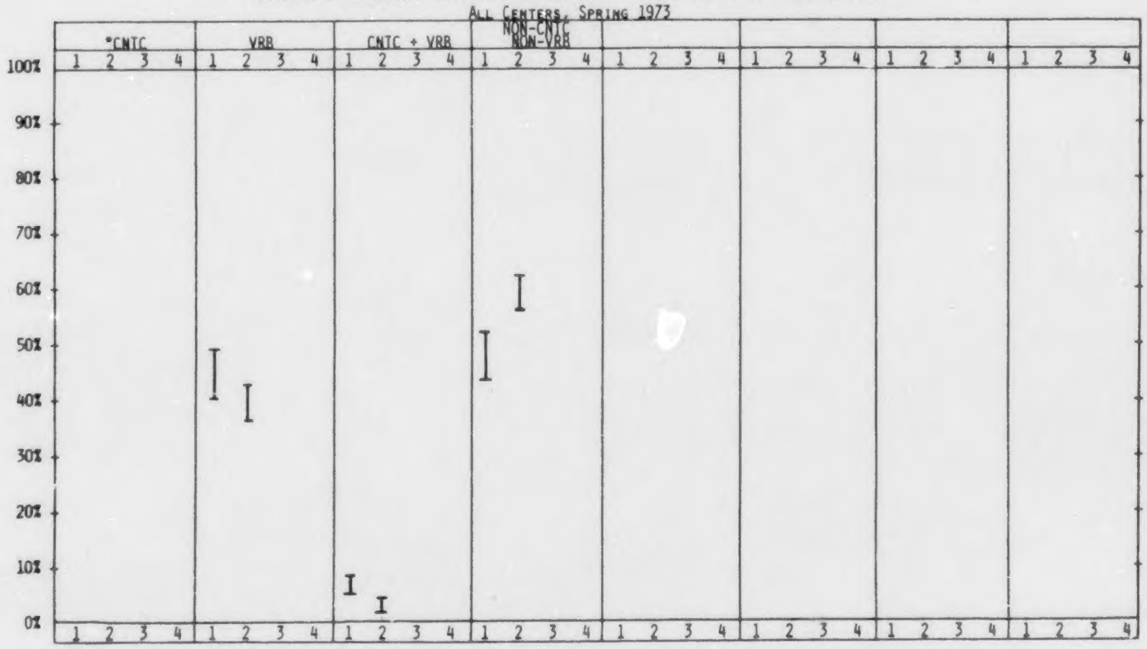


Figure 165
Goodman's Confidence Intervals of Category 9 Items for First Grade Classes
All Centers, Spring 1973

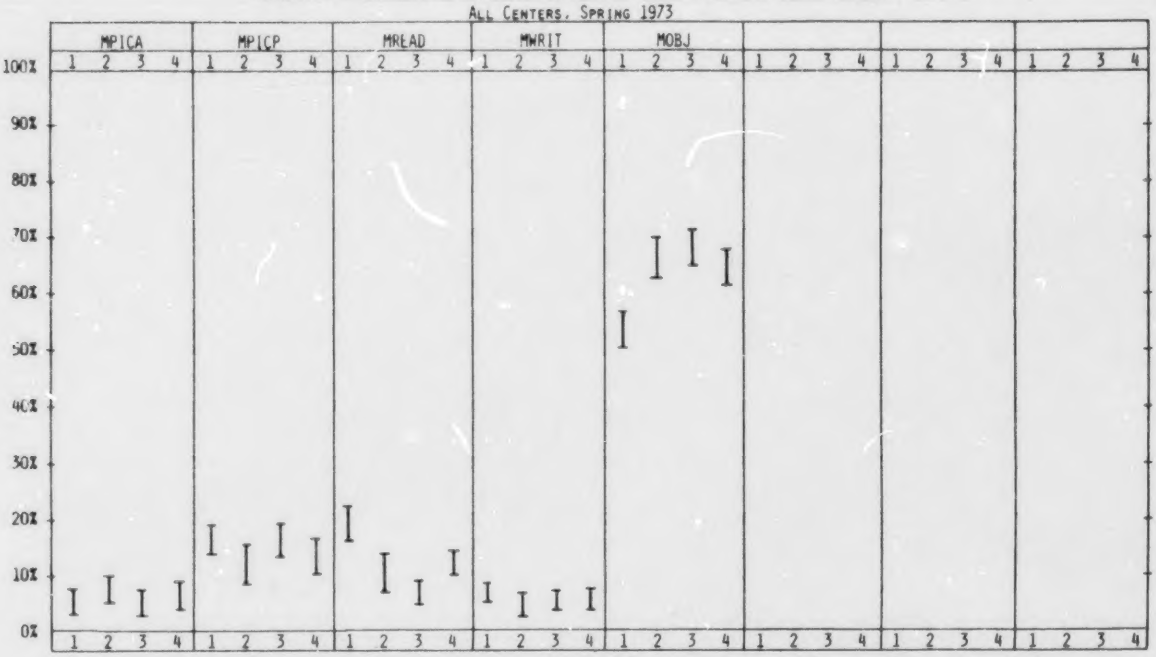


Figure 166
Goodman's Confidence Intervals of Category 12 Items for First Grade Classes
All Centers, Spring 1973

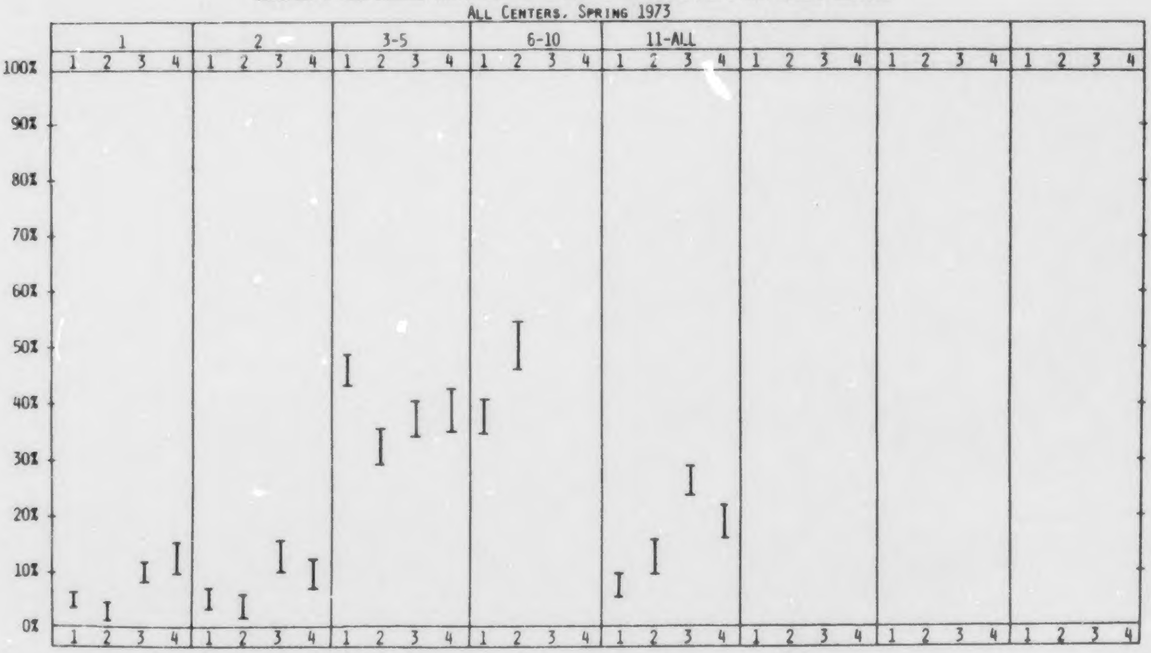


Figure 167

Goodman's Confidence Intervals of Category 15 Items for First Grade Classes
All Centers, Spring 1973

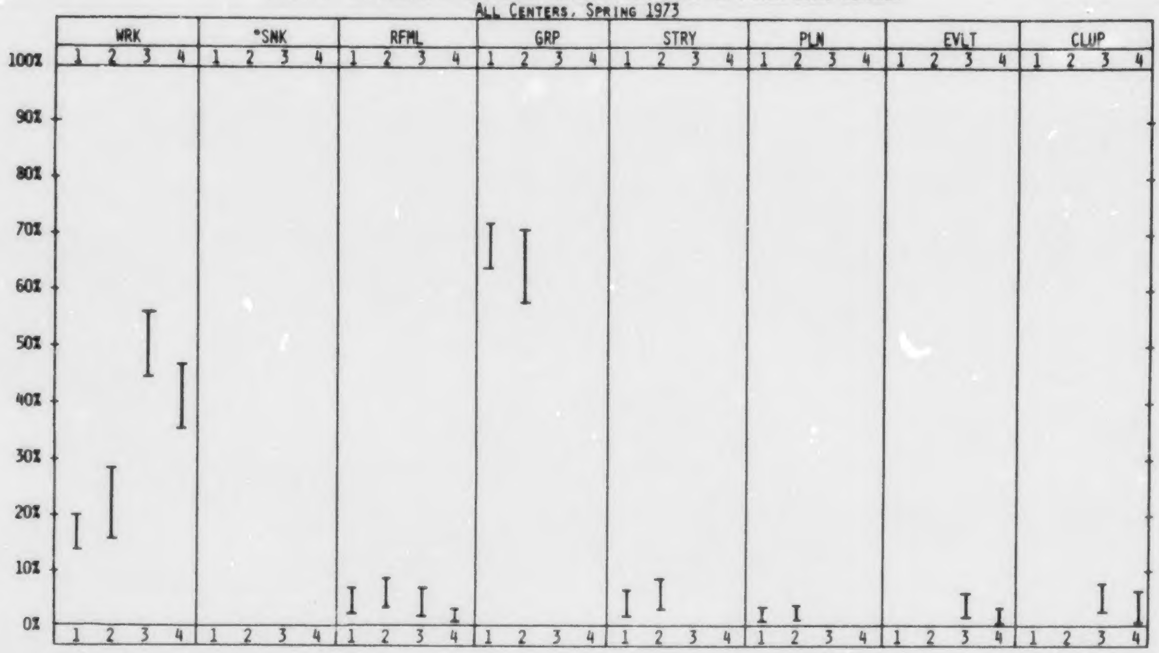
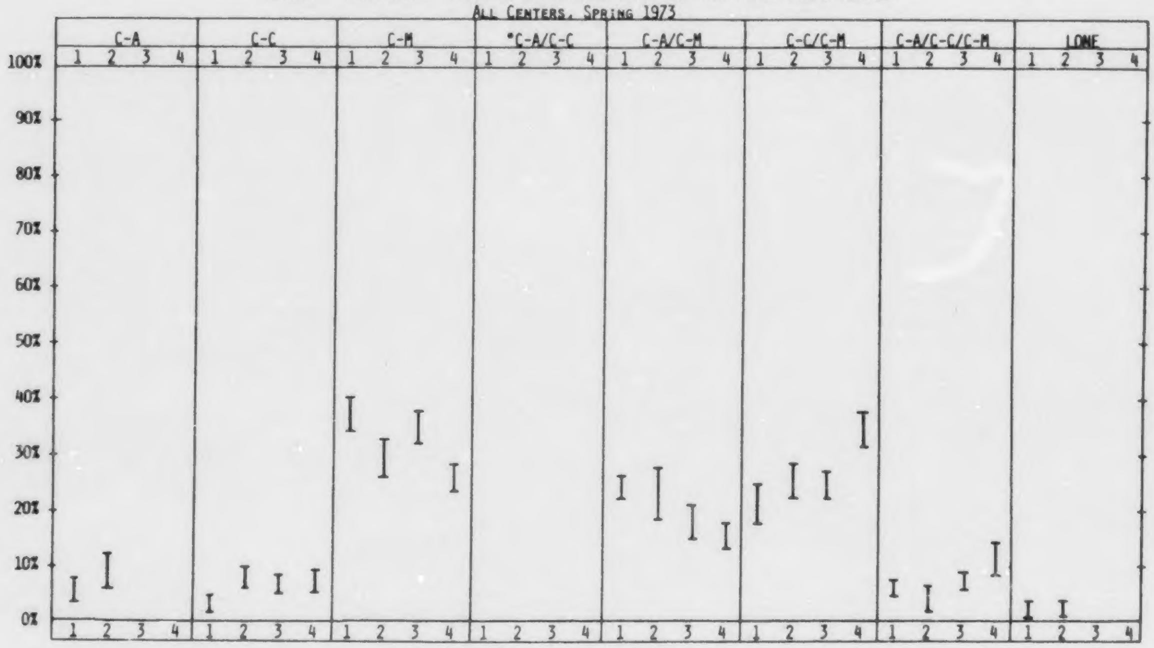


Figure 168

Goodman's Confidence Intervals of Interaction Types for First Grade Classes
All Centers, Spring 1973



Spring Comparisons of the Third Grades in All Centers

The third grades in these centers differed from each other in the size of the group, in the amount of teacher-selected and child-selected activities and in the interaction type. They did not differ with respect to the kinds of materials used (see Figures 169-178).

Trinidad third graders were less often involved in self-selected activities than Greeley and Florida students, were less often in situations involving an adult giving directions or instructions to the entire class than Florida or New York students, were less often in groups of more than ten than other students and were less often by themselves than Greeley or Florida students. They were also more often involved in child-material and child-adult/child-material interactions than New York students and more involved in child-adult/child-material interactions than Greeley students. Florida students were more often involved in child-selected activities than New York students, were more often in groups of two than Trinidad or New York students, were more often involved in child-material and child-adult/child-material interactions than New York students and were more often involved in child-child/child-material interactions than Trinidad students.

New York students were more often in situations in which an adult was giving directions or instructions to the entire class than Greeley or Trinidad students and were less often in groups of three to five students than Florida and Trinidad students. Compared to other students, New York third graders were more often in larger groups and were more frequently involved in child-child and child-child/child-material interactions. The adults in these classes interacted with each child on an individual basis less often than adults in the other centers.

Greeley students were less often involved in child-adult/child-child/child-material interactions and more often involved in child-material interactions than other students.

Figure 169

Goodman's Confidence Intervals of Category 1 Items for Third Grade Classes

All Centers, Spring 1973

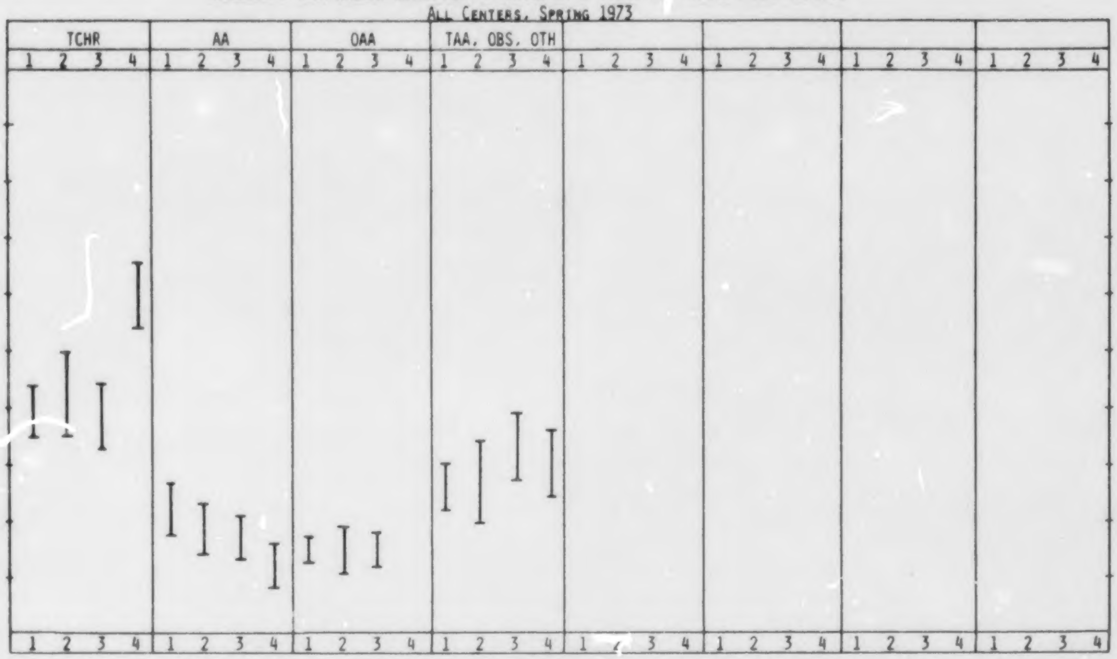


Figure 170

Goodman's Confidence Intervals of Category 2 Items for Third Grade Classes

All Centers, Spring 1973

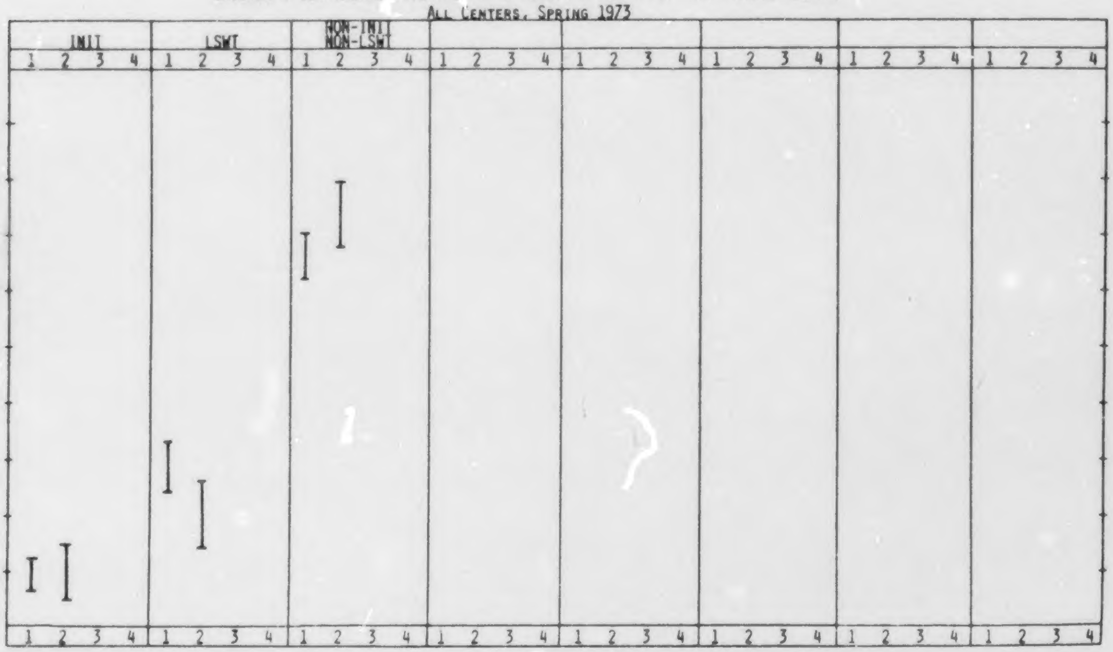


Figure 171
Goodman's Confidence Intervals of Category 4 Items for Third Grade Classes
All Centers, Spring 1973

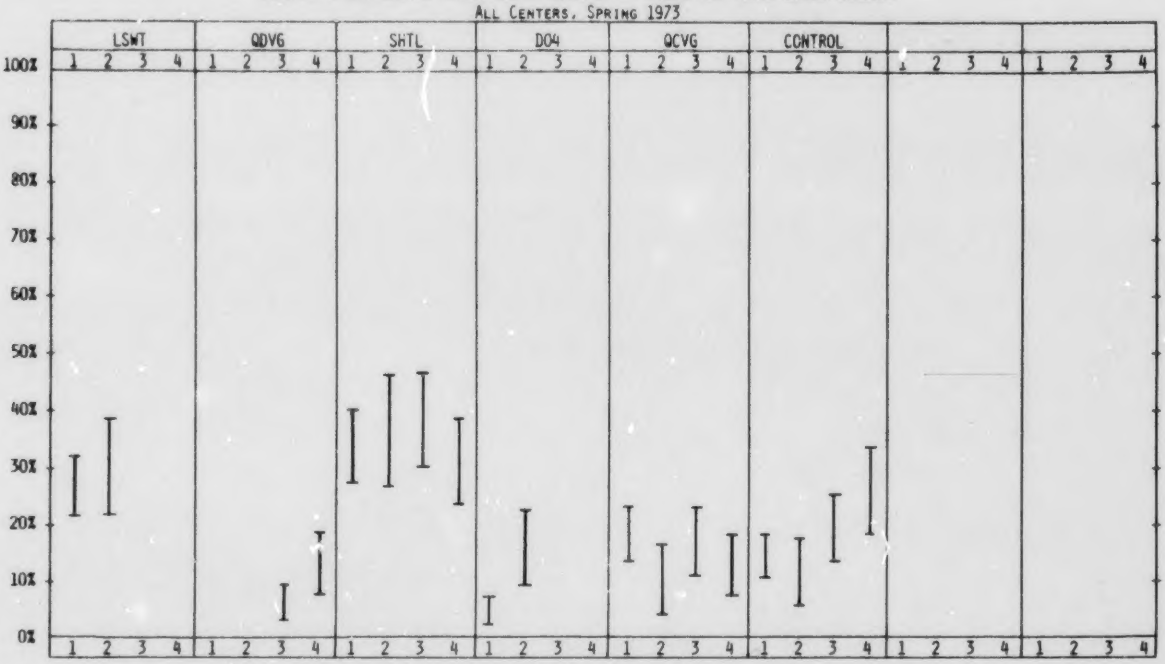


Figure 172
Goodman's Confidence Intervals of Category 5 Items for Third Grade Classes
All Centers, Spring 1973

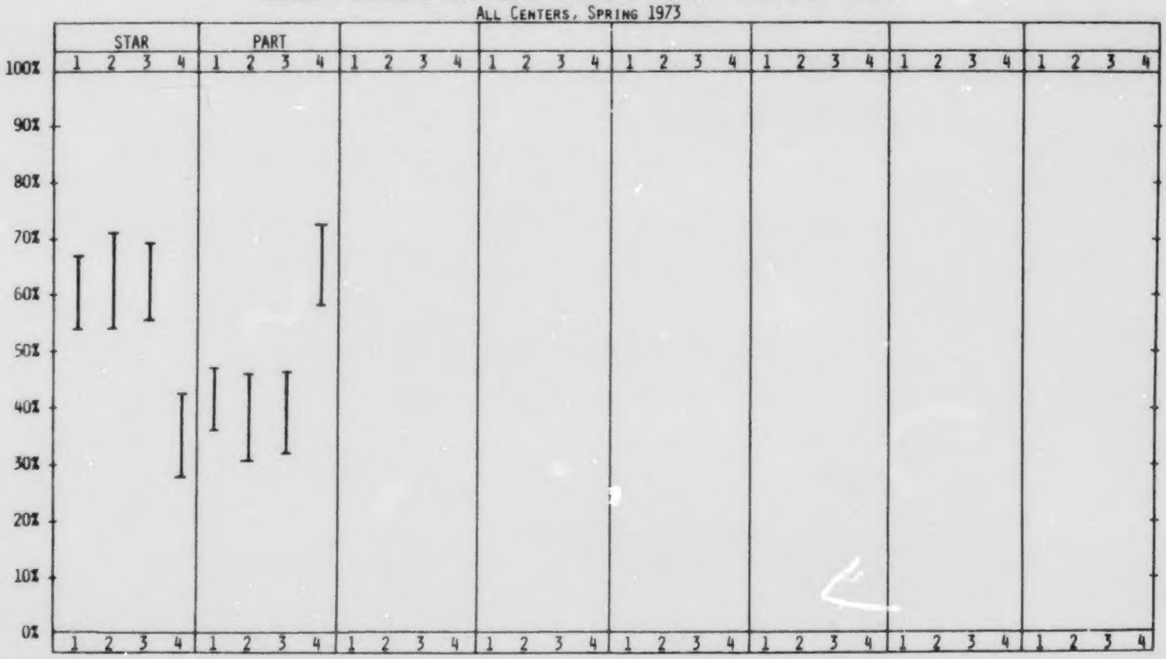


Figure 173

Goodman's Confidence Intervals of Category 6 Items for Third Grade Classes

All Centers, Spring 1973

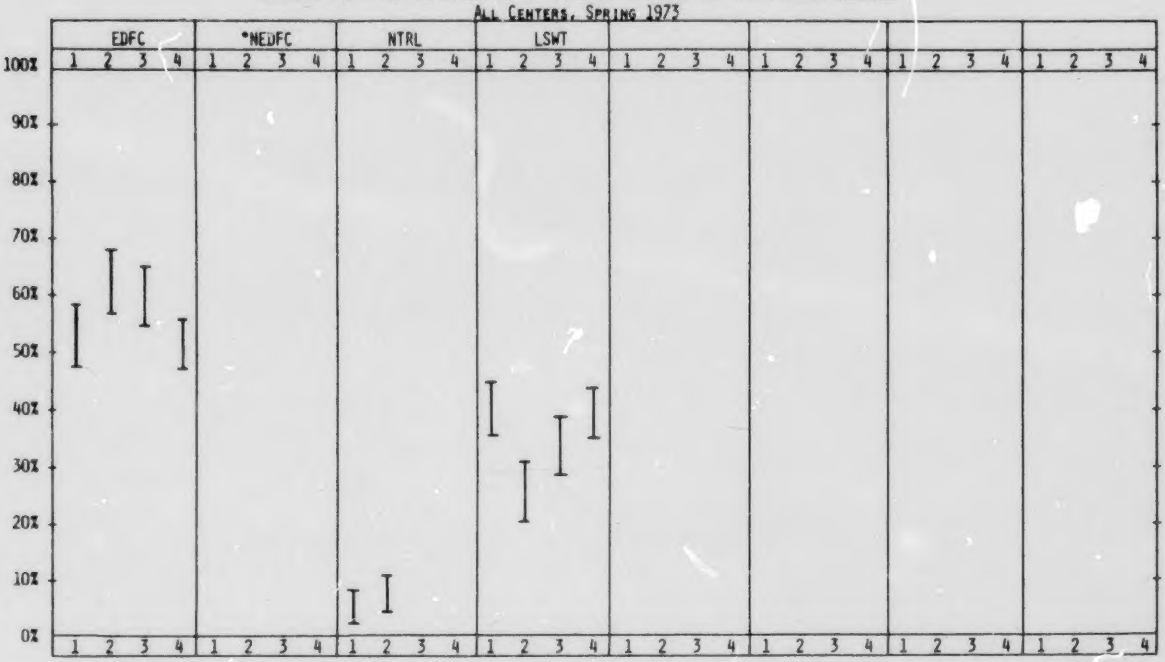


Figure 174

Goodman's Confidence Intervals of Category 7 Items for Third Grade Classes

All Centers, Spring 1973

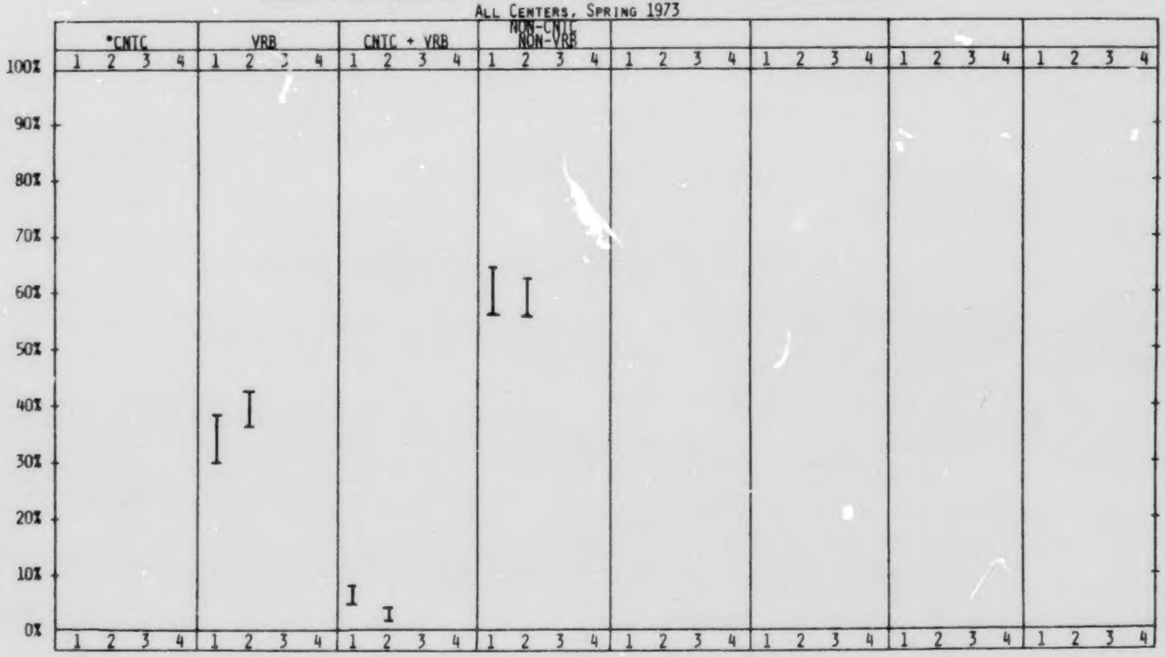


Figure 175
Goodman's Confidence Intervals of Category 9 Items for Third Grade Classes
All Centers, Spring 1973

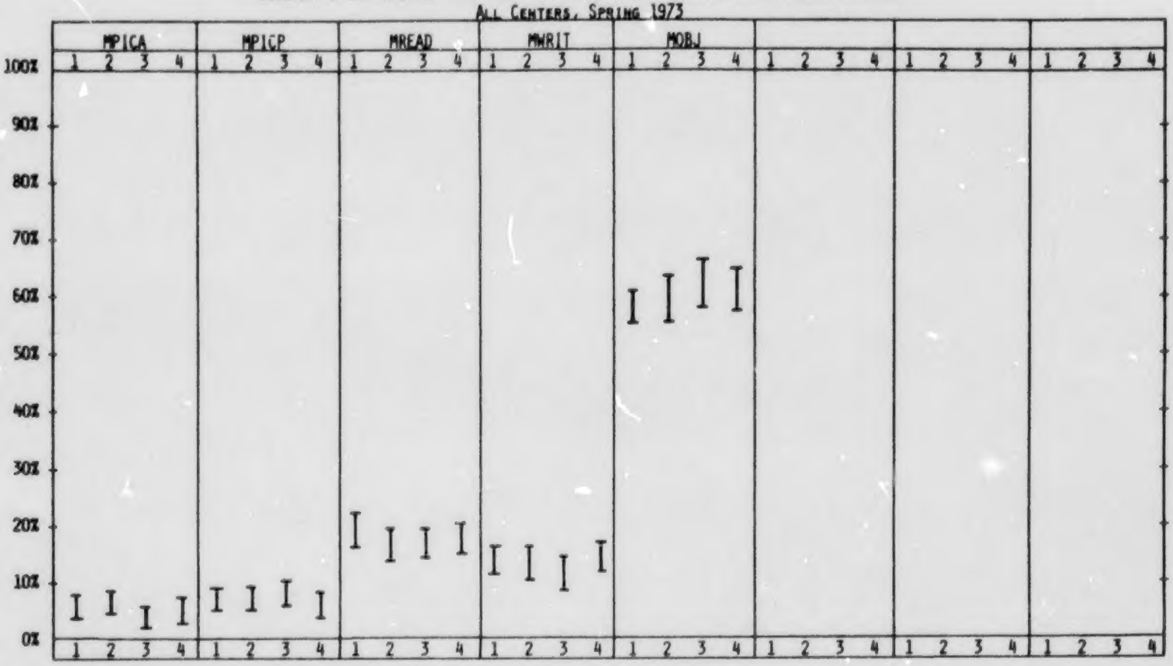


Figure 176
Goodman's Confidence Intervals of Category 12 Items for Third Grade Classes
All Centers, Spring 1973

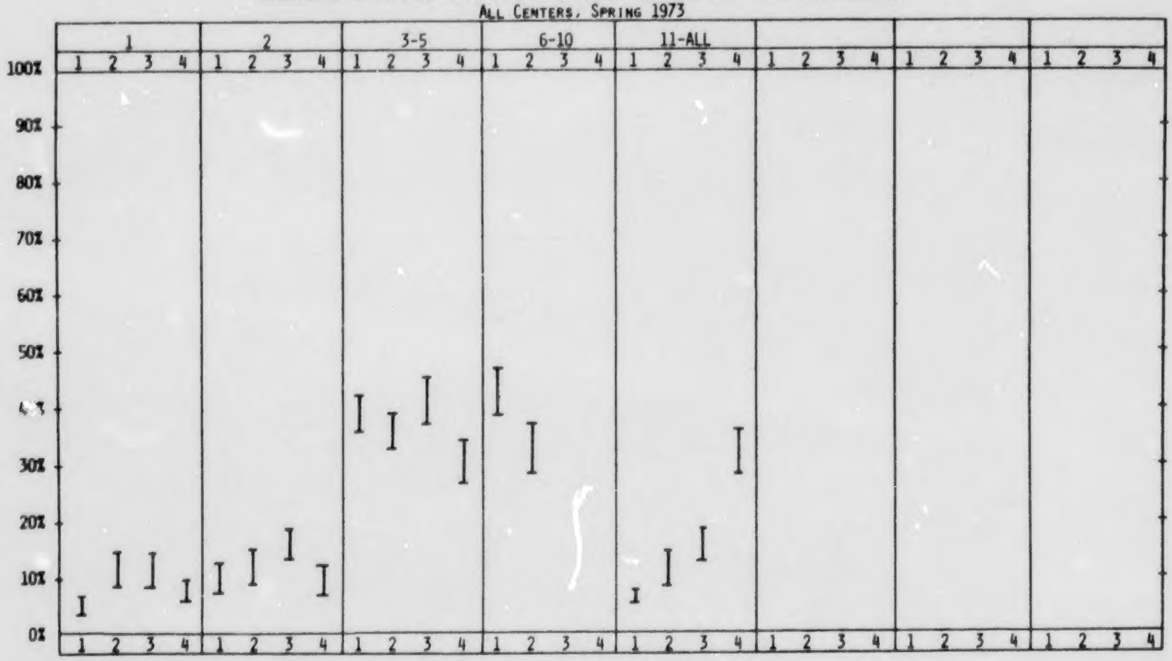


Figure 177

Goodman's Confidence Intervals of Category 15 Items for Third Grade Classes

All Centers, Spring 1973

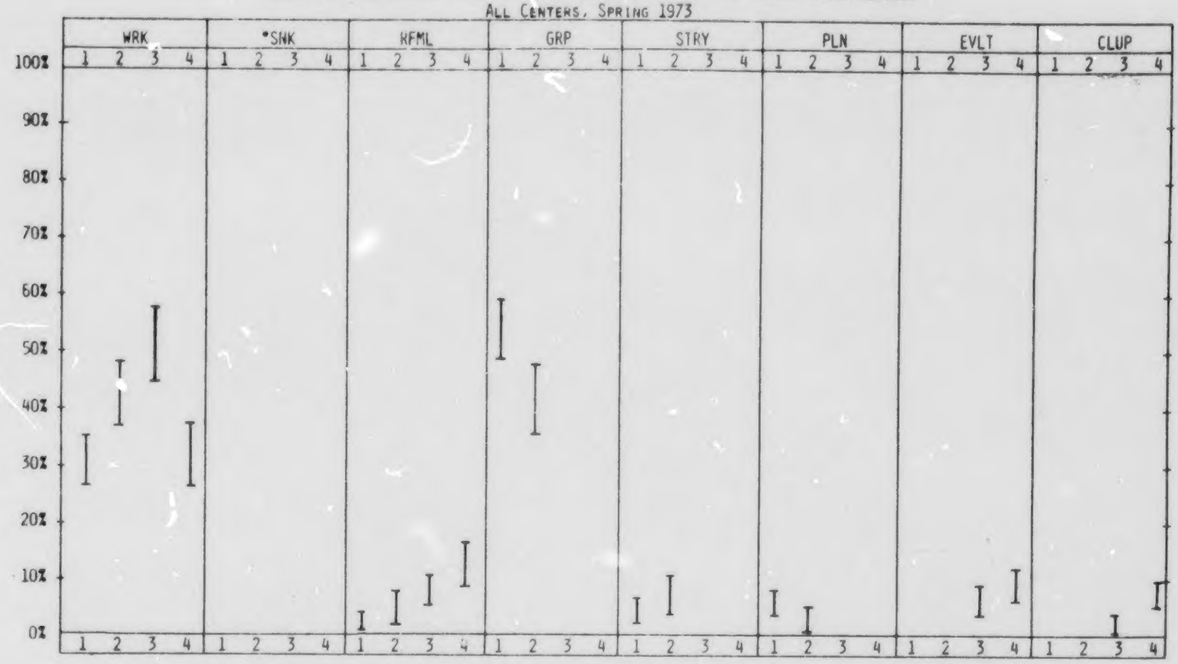
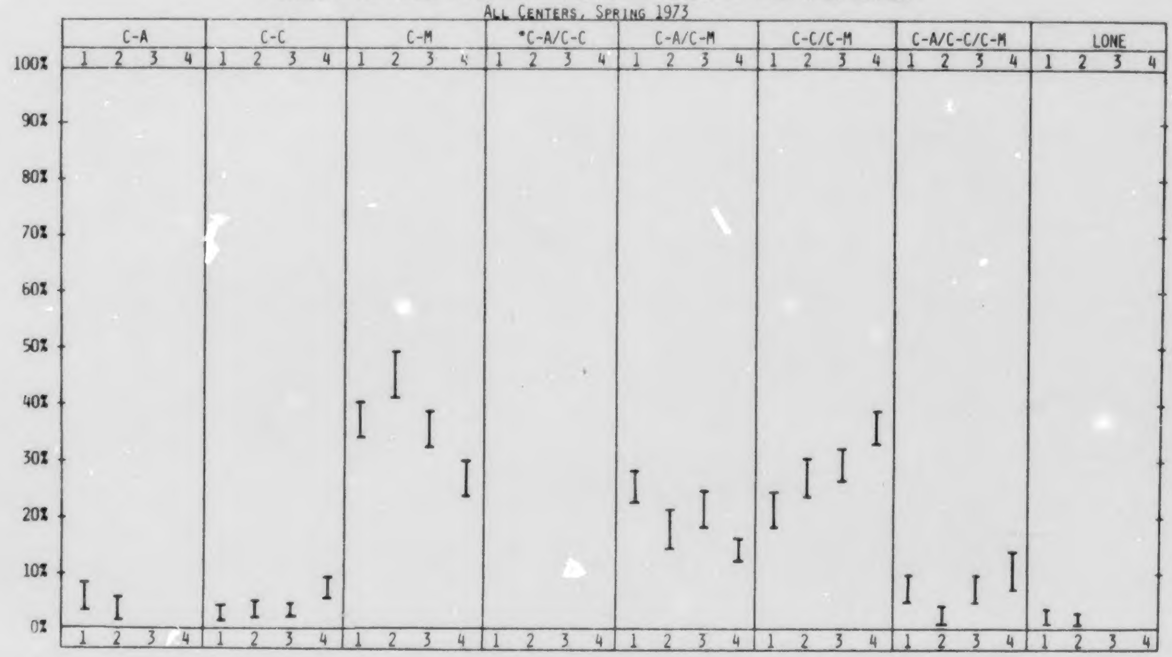


Figure 178

Goodman's Confidence Intervals of Interaction Types for Third Grade Classes

All Centers, Spring 1973



Spring Similarities in the Well Implemented Classes and in the Least Well Implemented Classes

The descriptions of both the well implemented classes and the least well implemented classes as rated by the High/Scope field consultants were compared across sites within grade levels to find out whether there were any characteristics of either the higher-rated classes or the lower-rated classes that were common to all sites. These comparisons could not be made using the curriculum assistants' ratings because the ratings were not complete for all centers.

The variables which distinguished the first grade well implemented classes, as rated by the consultants, from the least well implemented classes were not consistent across all sites. Only one characteristic, small groups of three to five children, was common to the well implemented classes in New York and Trinidad.

There was no consistency across sites in the variables which described the well implemented and least well implemented third grade classes either. Two characteristics, child-autonomy and group size, were common to two centers. Both the Trinidad and Greeley well implemented classes were characterized by child-selected activities and small groups. The Greeley and Florida well implemented classes were characterized by large groups.

Analysis of Fall-Spring Comparisons

Fall-Spring Comparisons of Category 1 Items for First Grade

Half of the first grade classes showed changes in this category (which identifies the adult with whom the observed child interacted) (see Figures 179-181). In most of the classrooms that showed change in this category the children interacted less often with the teacher in the spring than in the fall. When students in class 4 in New York and classes 2 and 3 in Trinidad interacted with an adult in the spring the adult was less often the teacher and was more often the observer or a classroom visitor. Children in class 4 in Florida interacted less often with the aides during the second collection period and more often with the observer or classroom visitor. Class 3 in Greeley had more occurrence of children interacting with aides and less occurrence of them interacting with the teacher.

Figure 179
Goodman's Confidence Intervals of Category 1: First Grade Classes
Fall-Spring Comparisons

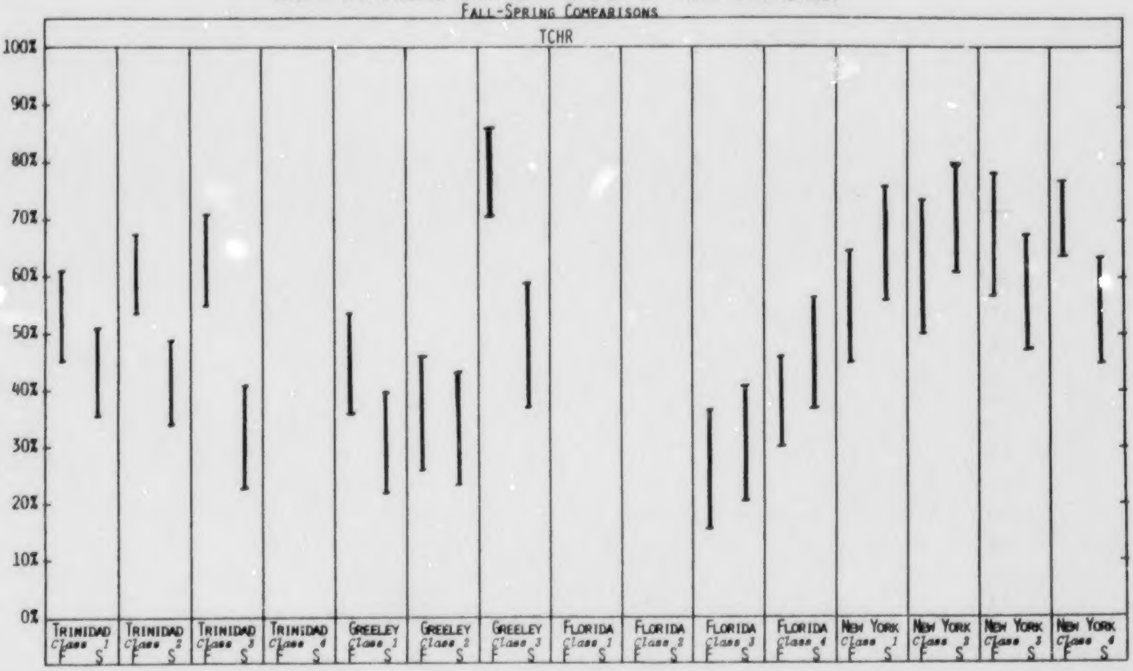


Figure 180
Goodman's Confidence Intervals of Category 1: First Grade Classes
Fall-Spring Comparisons

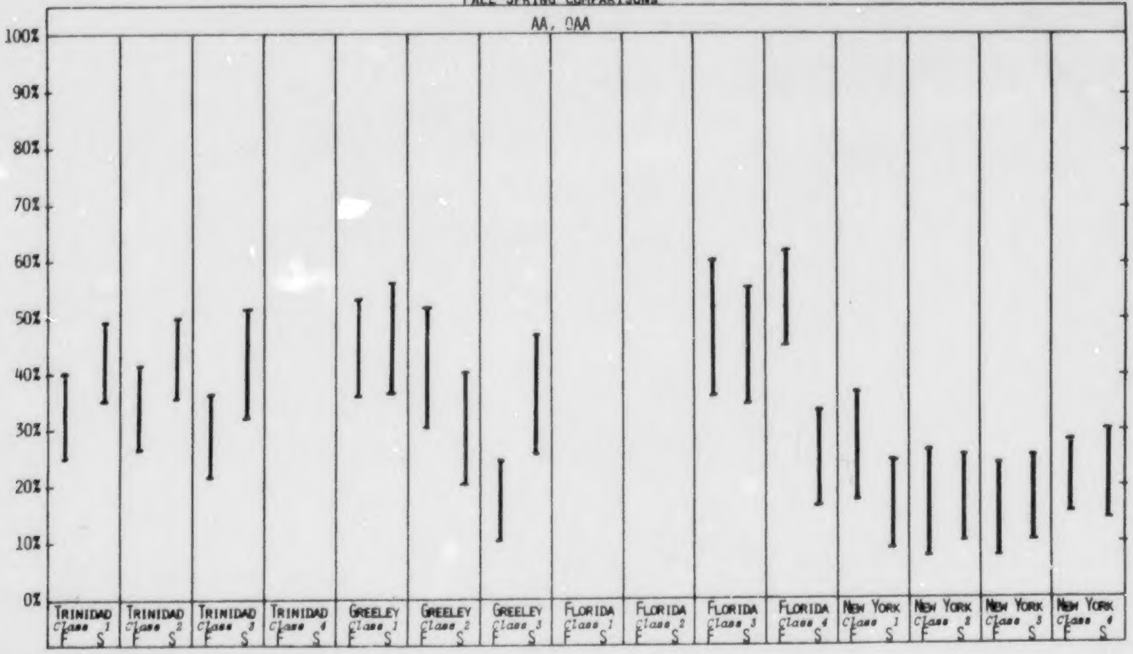
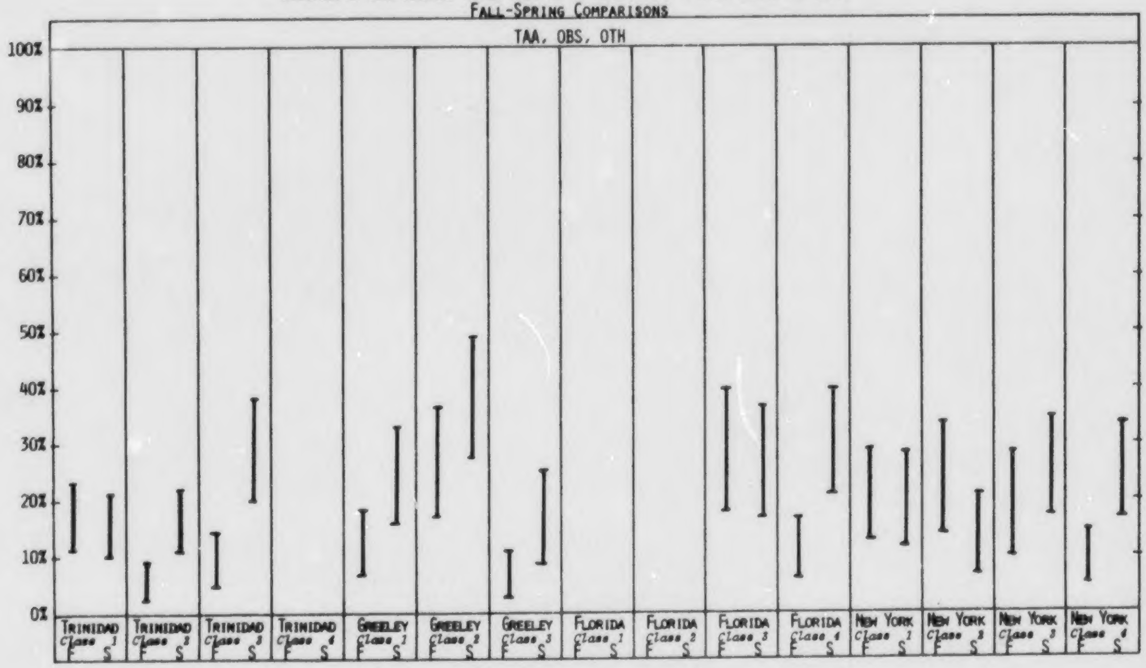


FIGURE 181
GOODMAN'S CONFIDENCE INTERVALS OF CATEGORY 1: FIRST GRADE CLASSES
FALL-SPRING COMPARISONS



Fall-Spring Comparisons of Category 1 Items for Third Grades

All of the Trinidad classes showed change in this category (see Figures 182-184). Class 1 children interacted more often with the aides in the spring, class 2 and class 3 children interacted more often with visitors or the observer and class 4 children interacted less often with teacher and more often with visitors or the observer in the spring.

None of the New York or Florida classes showed change in this variable and only one class in Greeley changed. Class 3 children in Greeley interacted less often with the teacher during the spring.

FIGURE 182
GOODMAN'S CONFIDENCE INTERVALS OF CATEGORY 1: THIRD GRADE CLASSES
FALL-SPRING COMPARISONS

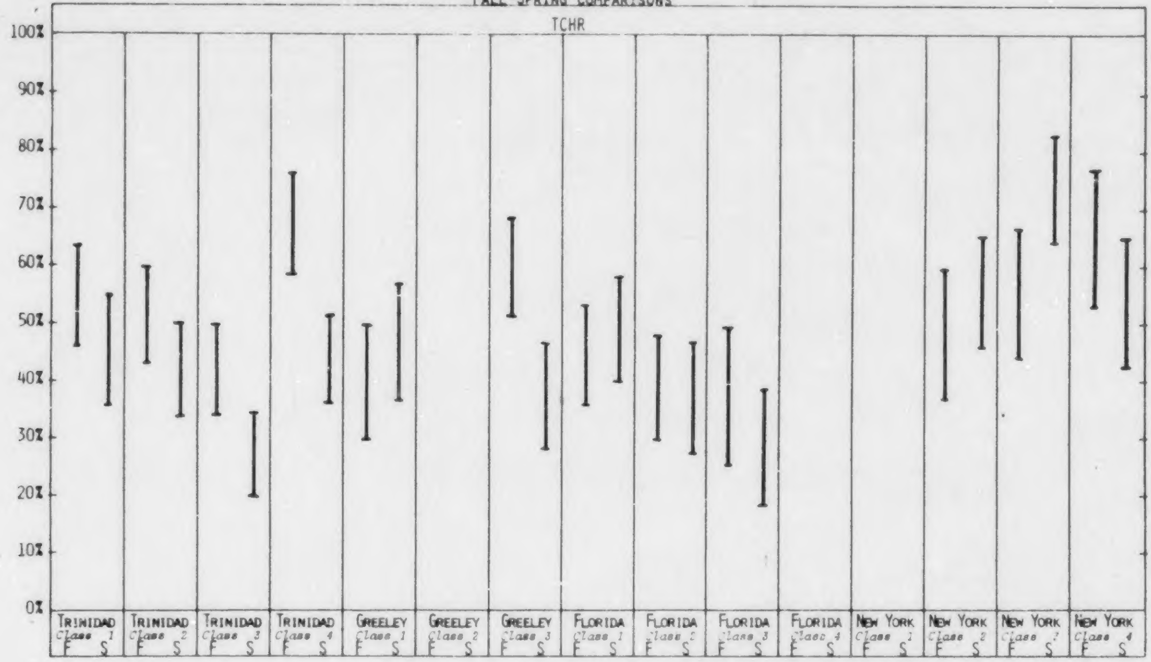


FIGURE 183
GOODMAN'S CONFIDENCE INTERVALS OF CATEGORY 1: THIRD GRADE CLASSES
FALL-SPRING COMPARISONS

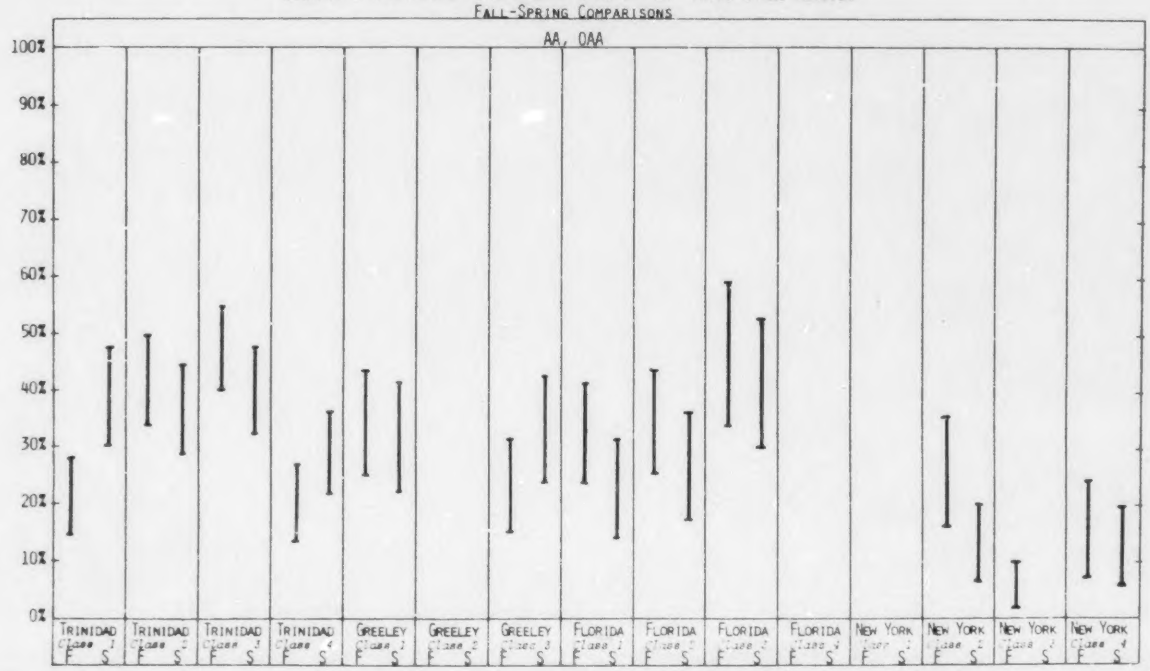
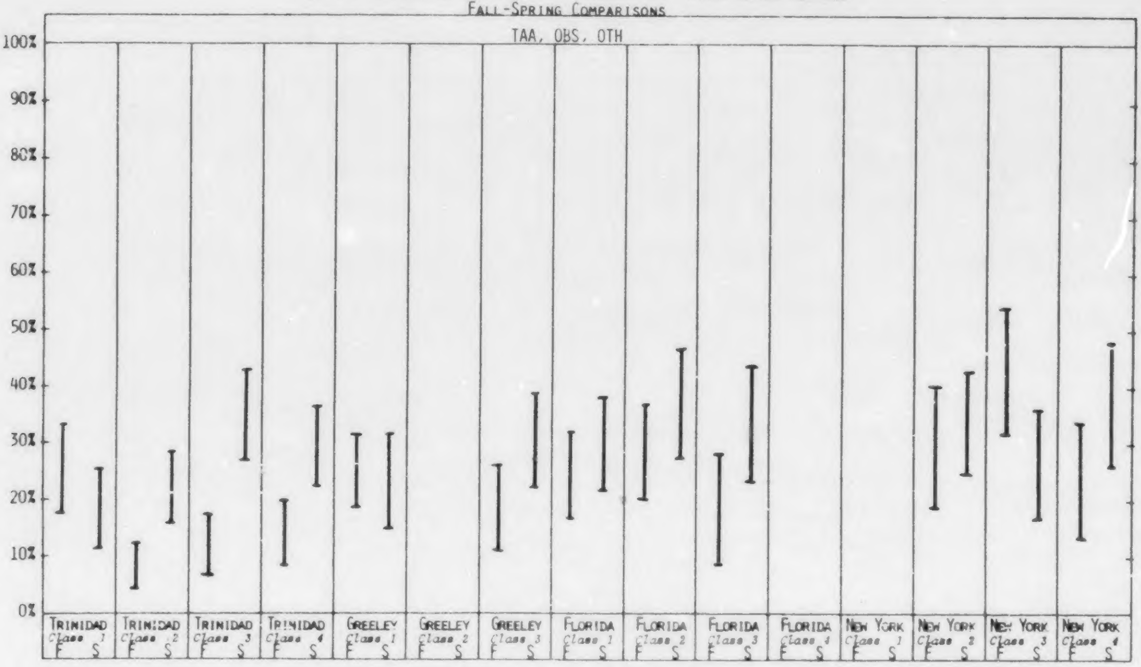


FIGURE 184

GOODMAN'S CONFIDENCE INTERVALS OF CATEGORY 1: THIRD GRADE CLASSES

FALL-SPRING COMPARISONS



Fall-Spring Comparisons of Category 4 Items for First Grade Classes

Only slight variation was seen in the adult's classroom behavior across the two data collection periods (see Figures 185-190). Of the fourteen first grade classes only two, both in New York, showed change in this category. Class 1 adults in New York used more controlling statements in the spring and class 3 adults in this site did less showing and telling in the spring.

FIGURE 185
GOODMAN'S CONFIDENCE INTERVALS OF CATEGORY 4: FIRST GRADE CLASSES
FALL-SPRING COMPARISONS

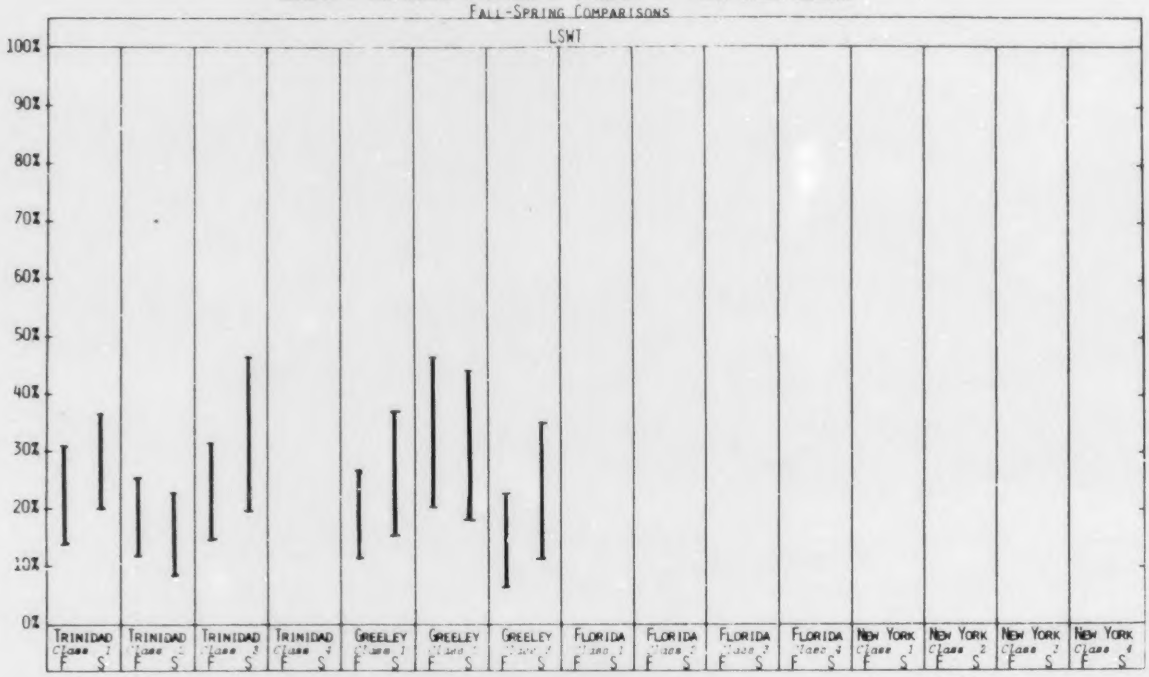


FIGURE 186
GOODMAN'S CONFIDENCE INTERVALS OF CATEGORY 4: FIRST GRADE CLASSES
FALL-SPRING COMPARISONS

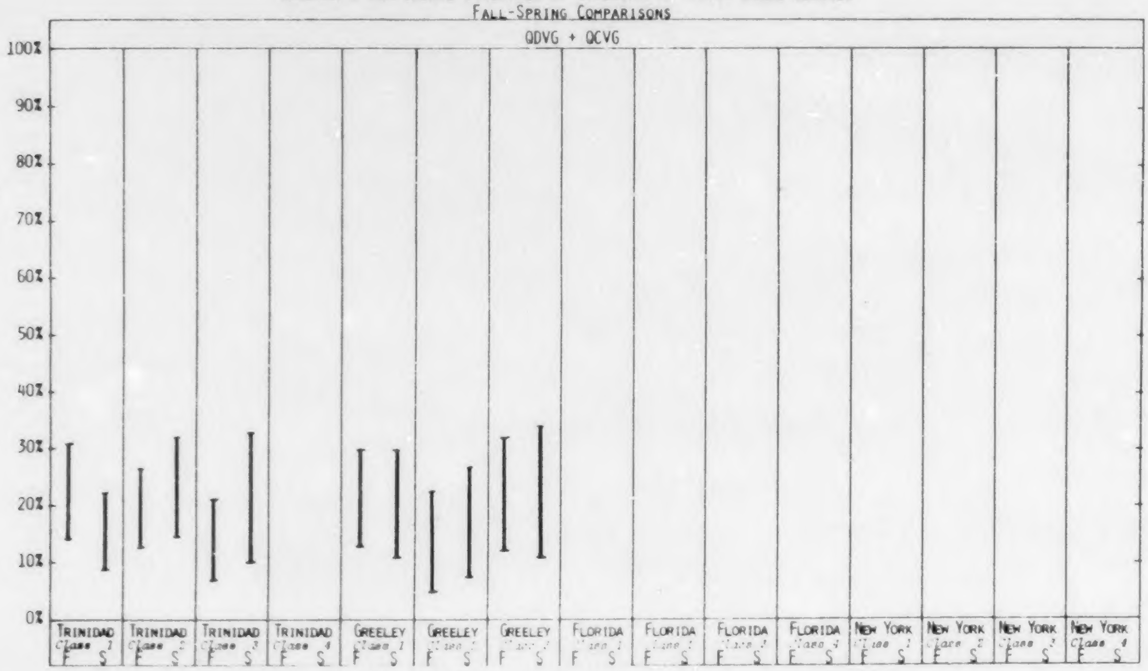


Figure 187
Goodman's Confidence Intervals of Category 4: First Grade Classes
Fall-Spring Comparisons

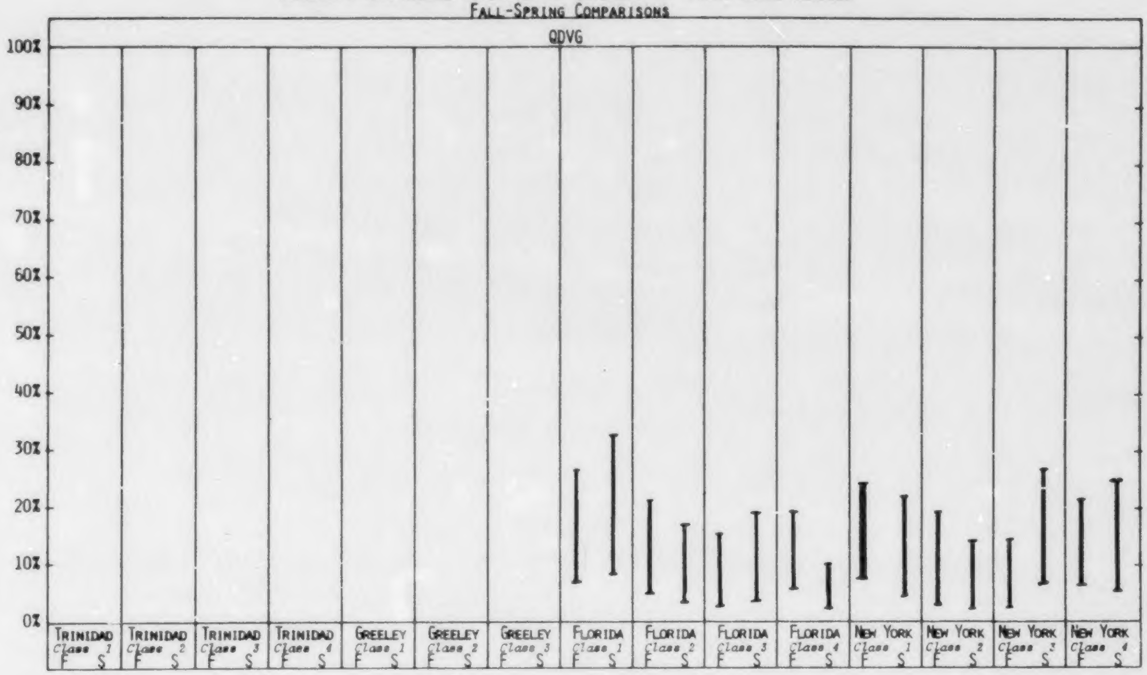


Figure 188
Goodman's Confidence Intervals of Category 4: First Grade Classes
Fall-Spring Comparisons

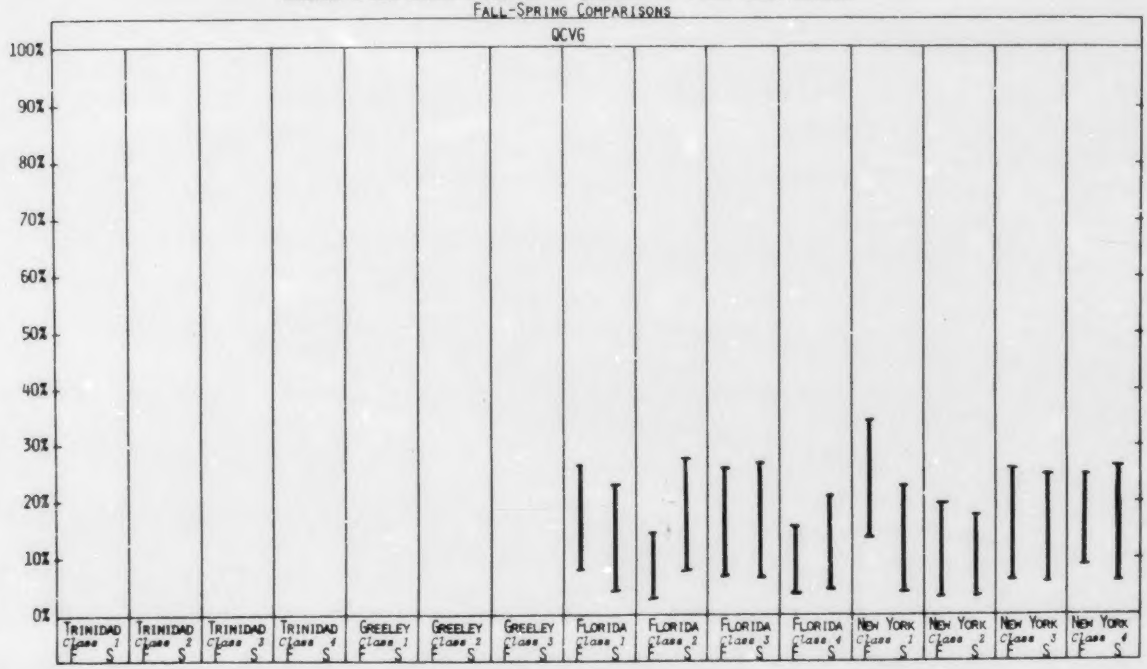


Figure 189
Goodman's Confidence Intervals of Category 4: First Grade Classes
Fall-Spring Comparisons

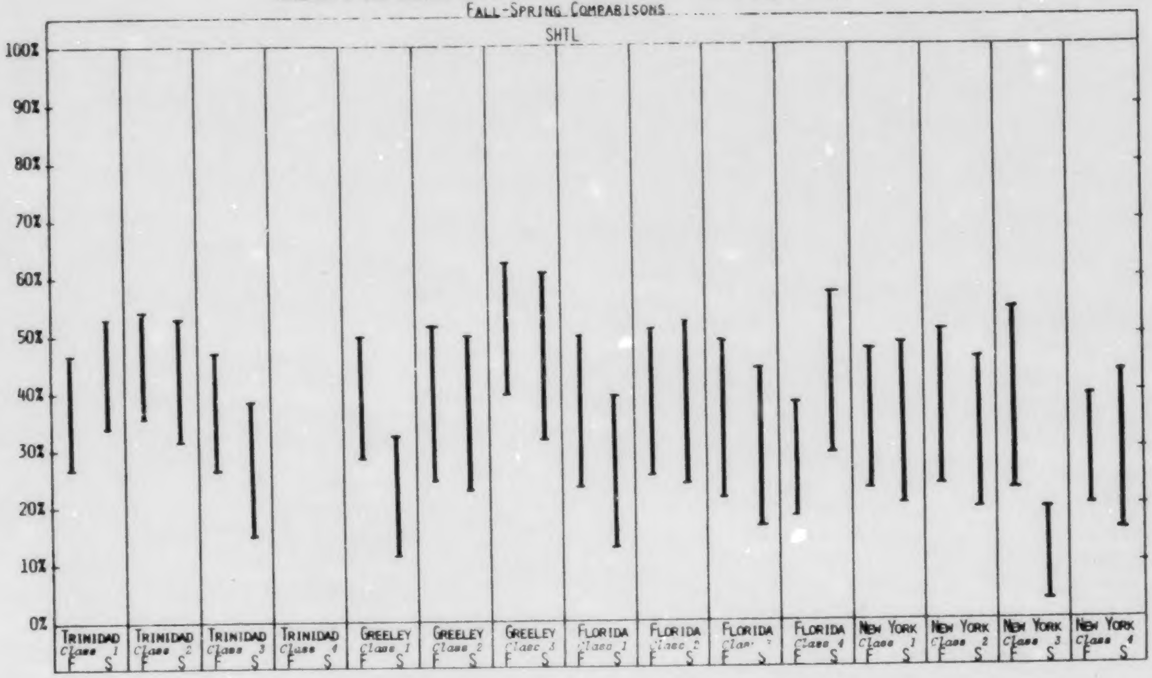
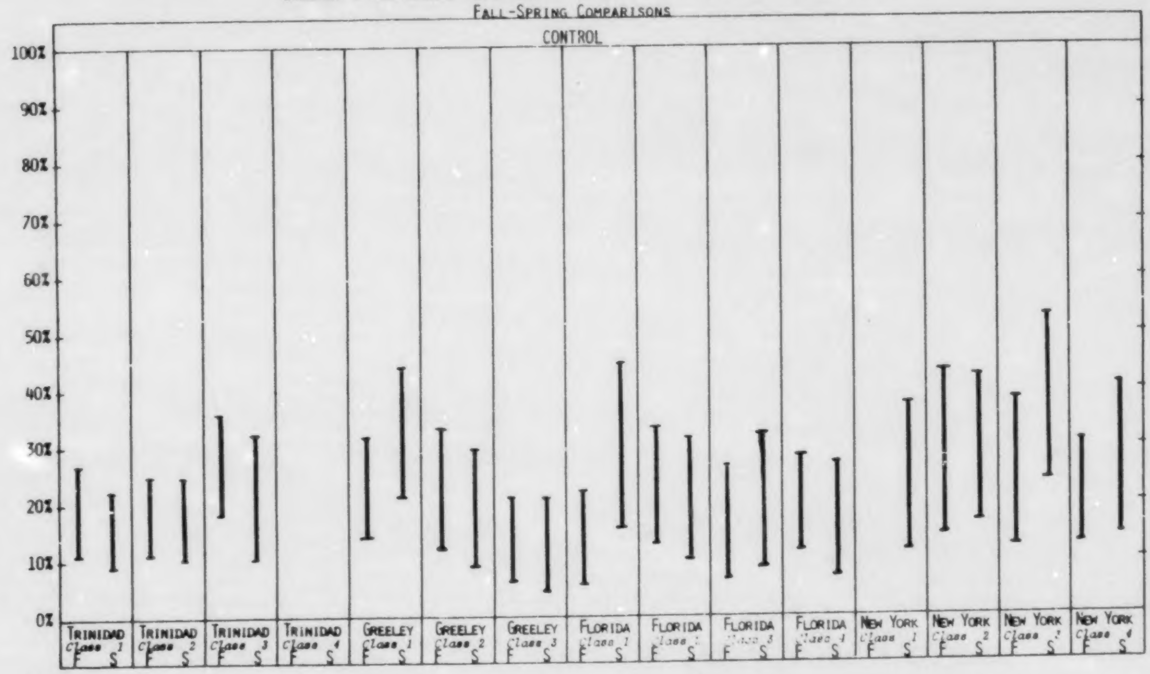


Figure 190
Goodman's Confidence Intervals of Category 4: First Grade Classes
Fall-Spring Comparisons



Fall-Spring Comparisons of Category 4 Items for Third Grade Classes

Even less variation in adult teaching behavior was seen in the third grade classes (see Figures 191-196). There were no changes in the teaching behaviors in New York, Florida or Greeley. Class 4 adults in Trinidad were more often involved in showing and telling activities with their students in the spring.

FIGURE 191
GOODMAN'S CONFIDENCE INTERVALS OF CATEGORY 4: THIRD GRADE CLASSES
FALL-SPRING COMPARISONS

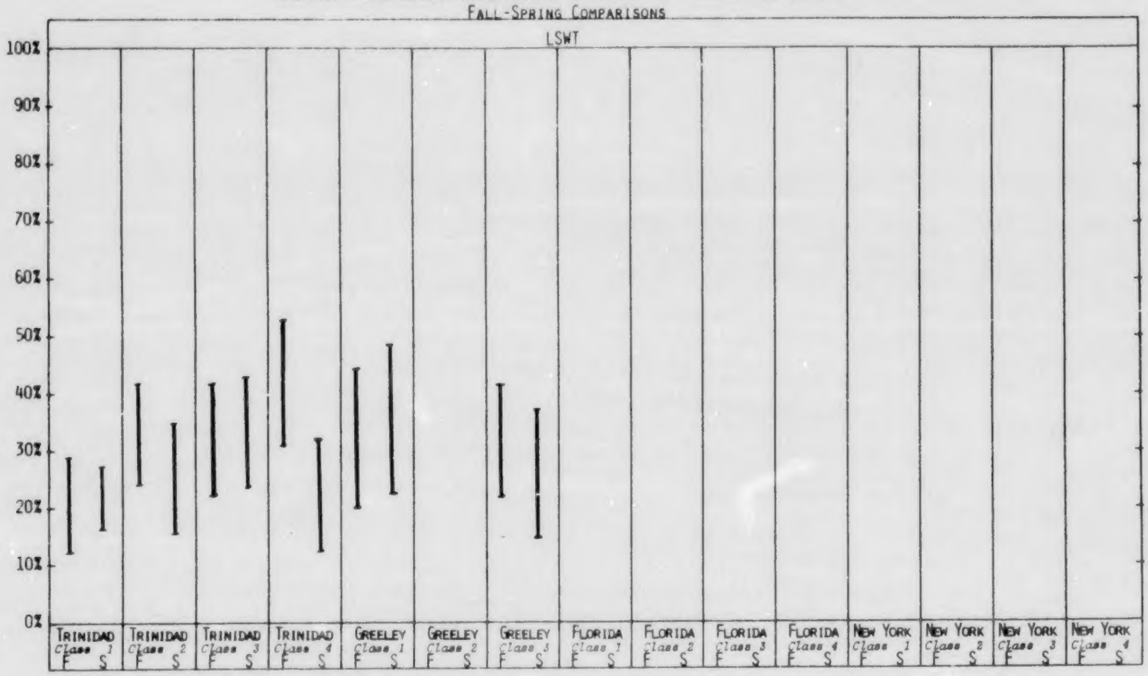


FIGURE 192
GOODMAN'S CONFIDENCE INTERVALS OF CATEGORY 4: THIRD GRADE CLASSES
FALL-SPRING COMPARISONS

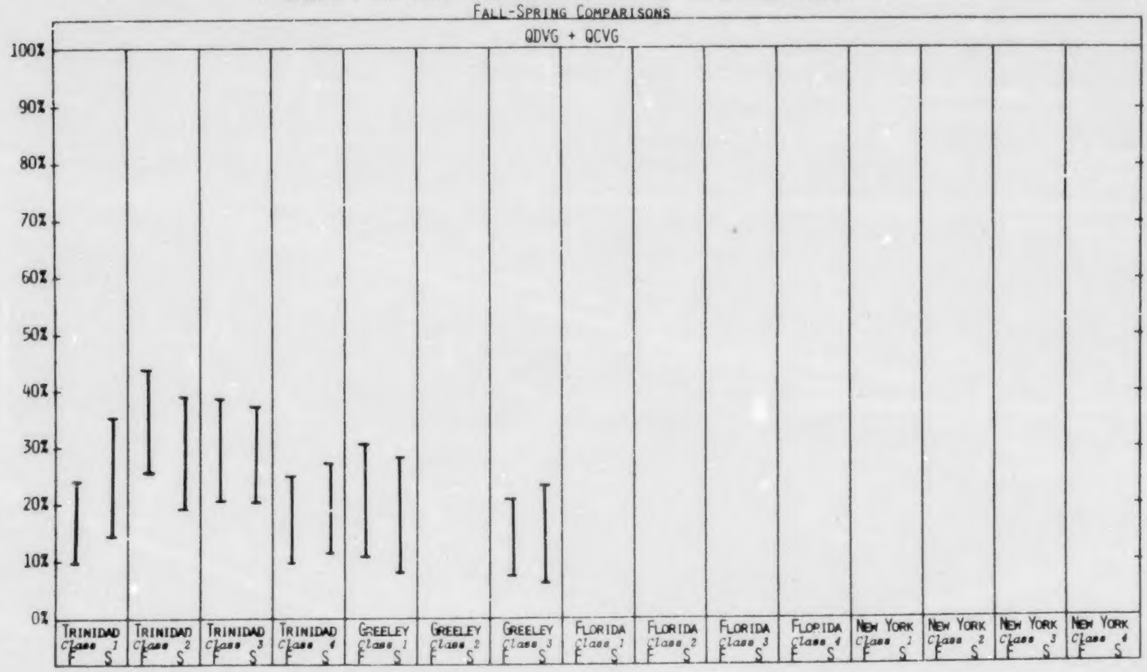


Figure 193
Goodman's Confidence Intervals of Category 4: Third Grade Classes
Fall-Spring Comparisons

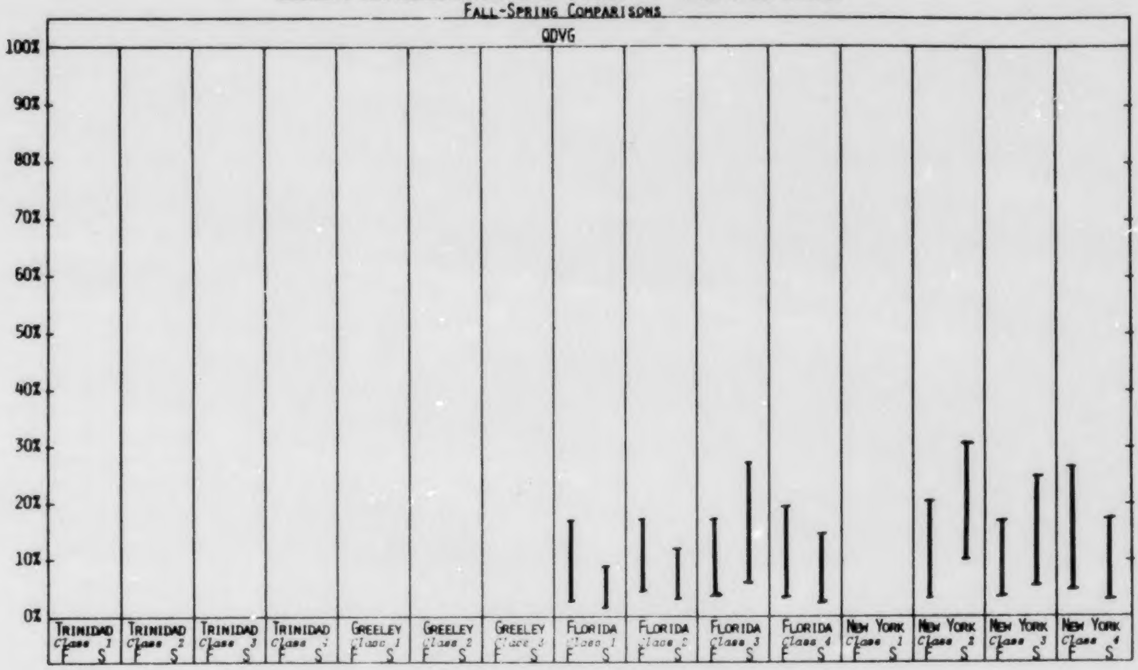


Figure 194
Goodman's Confidence Intervals of Category 4: Third Grade Classes
Fall-Spring Comparisons

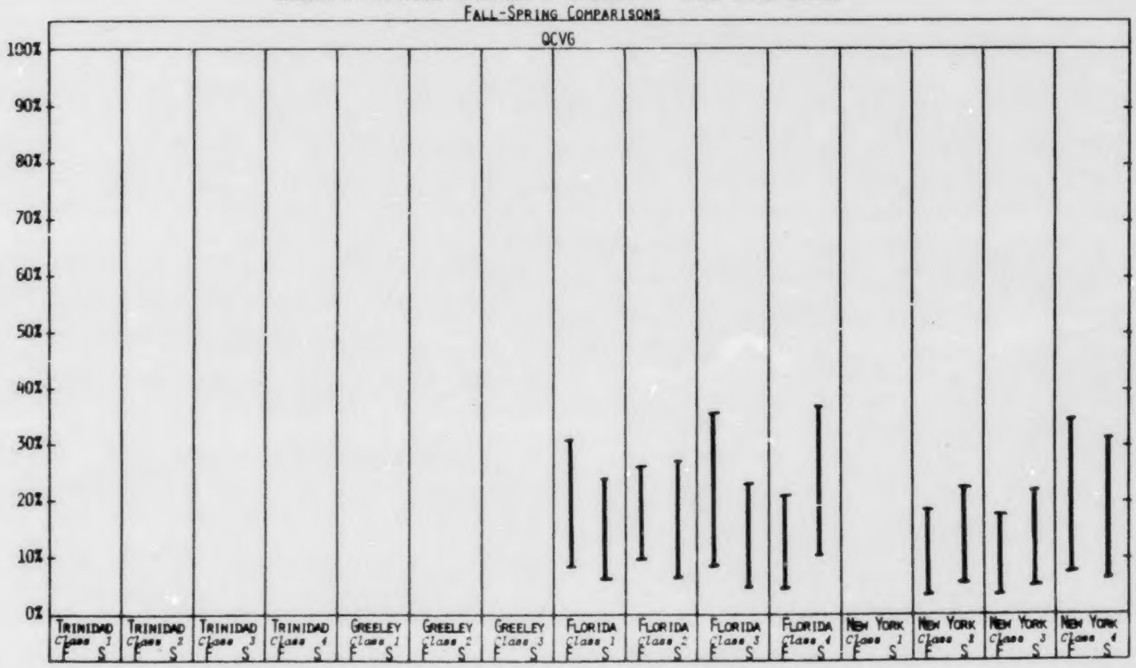


FIGURE 195
GOODMAN'S CONFIDENCE INTERVALS OF CATEGORY 4: THIRD GRADE CLASSES
FALL-SPRING COMPARISONS

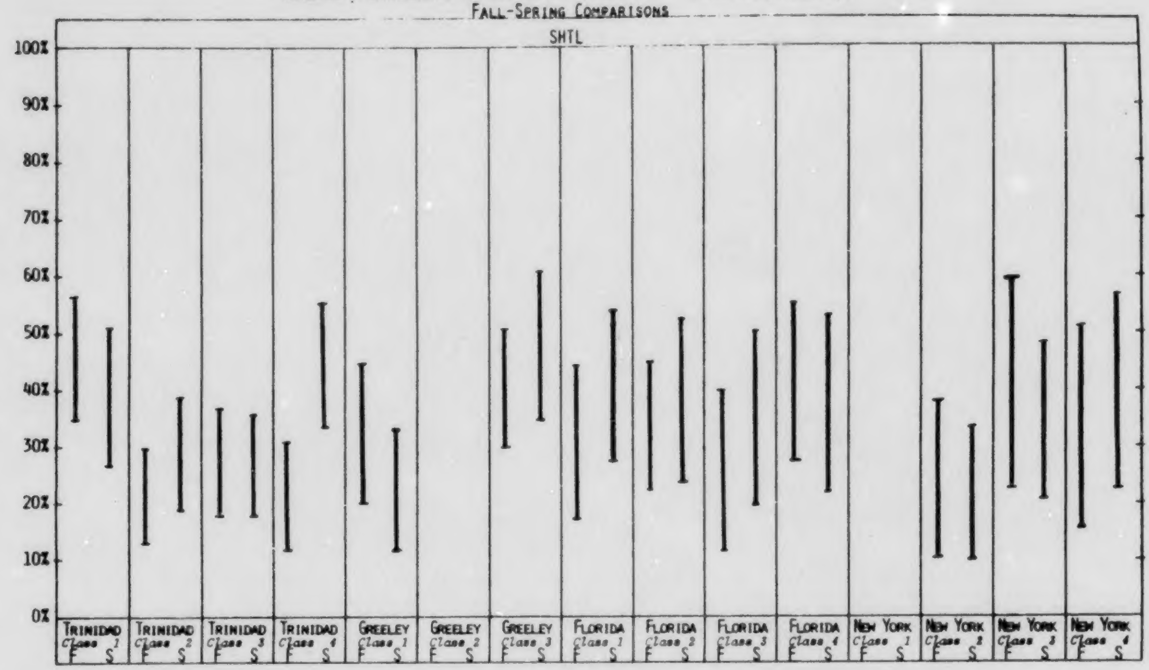
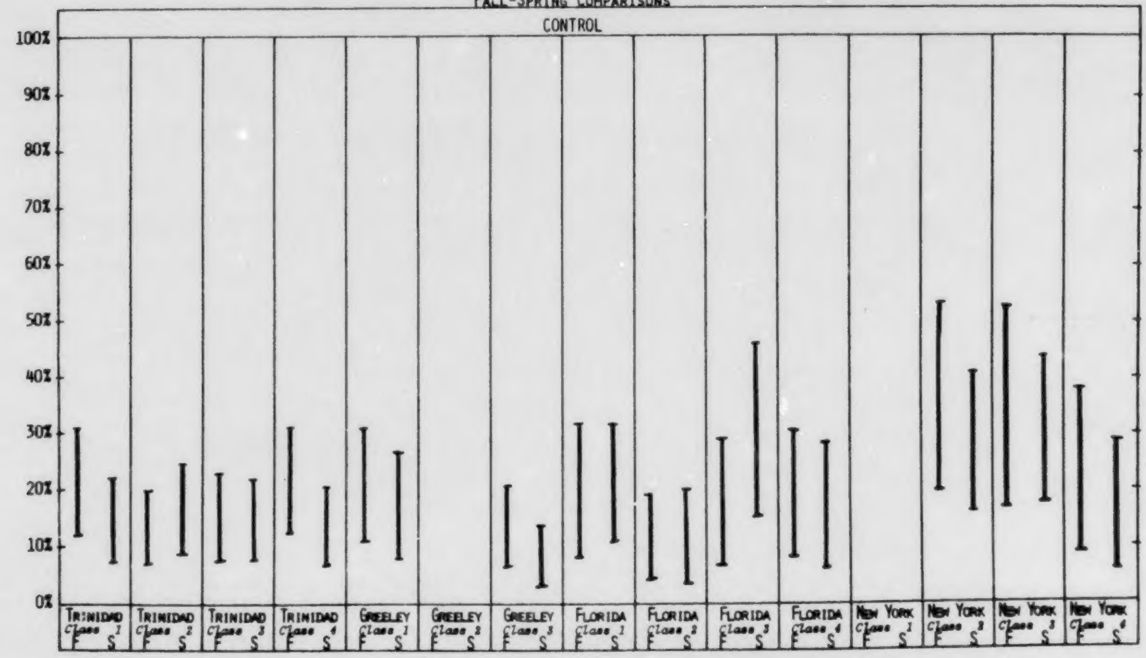


FIGURE 196
GOODMAN'S CONFIDENCE INTERVALS OF CATEGORY 4: THIRD GRADE CLASSES
FALL-SPRING COMPARISONS



Fall-Spring Comparisons of Category 5 Items for First Grade Classes

Only two of the fourteen first grade classes differed across the two observation periods in the kind of attention given to children (see Figures 197-198). Children in classes 3 in Greeley and Trinidad received more individual attention from adults in the spring than they received in the fall.

FIGURE 197
GOODMAN'S CONFIDENCE INTERVALS OF CATEGORY 5: FIRST GRADE CLASSES
FALL-SPRING COMPARISONS

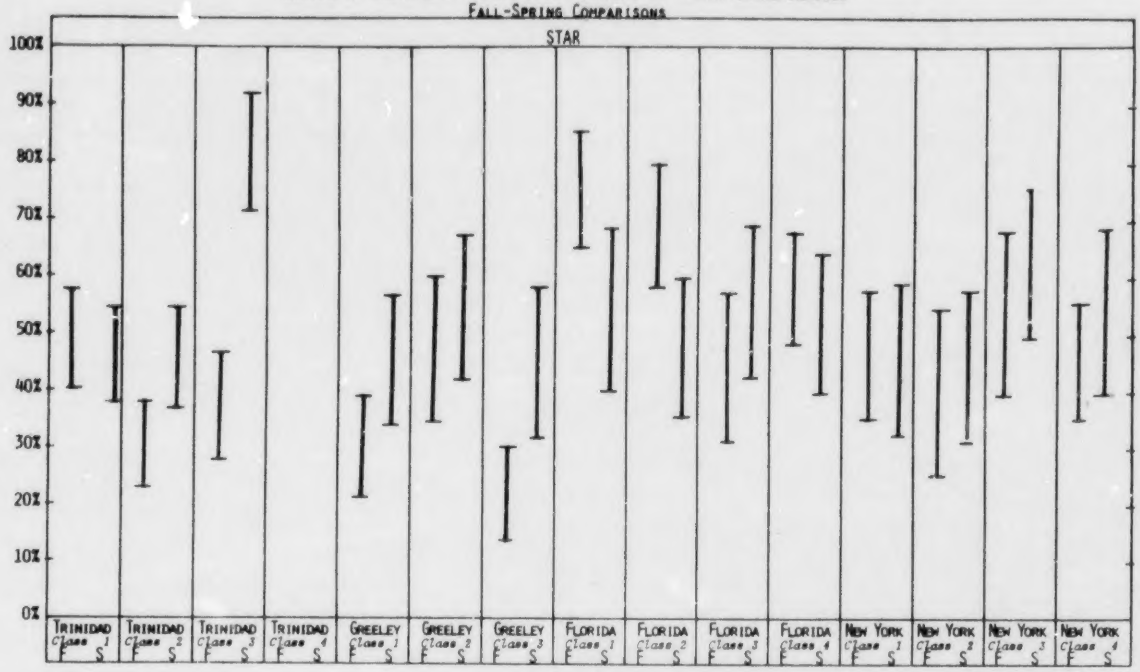
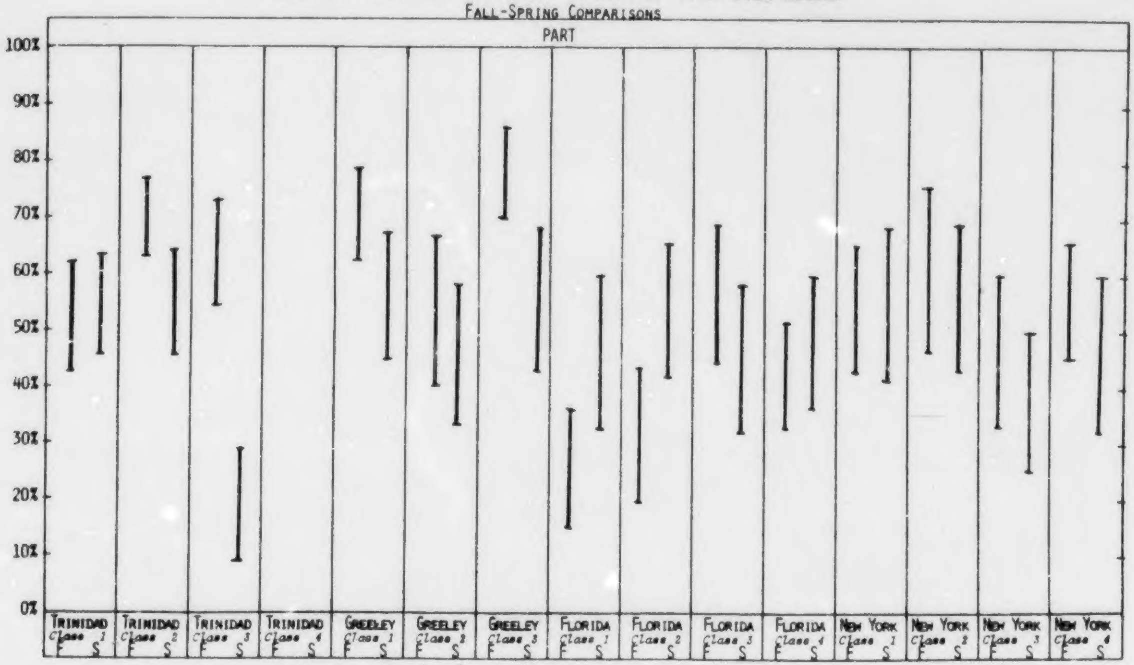


FIGURE 198
GOODMAN'S CONFIDENCE INTERVALS OF CATEGORY 5: FIRST GRADE CLASSES
FALL-SPRING COMPARISONS



Fall-Spring Comparisons of Category 5 Items for Third Grade Classes

Three of the fourteen third grade classes differed across time in the kind of attention given by adults (see Figures 199-200). Class 4 children in New York and class 1 children in Florida received less individual attention from adults in the spring and Trinidad class 3 children received more individual attention in the spring.

FIGURE 199
GOODMAN'S CONFIDENCE INTERVALS OF CATEGORY 5: THIRD GRADE CLASSES
FALL-SPRING COMPARISONS

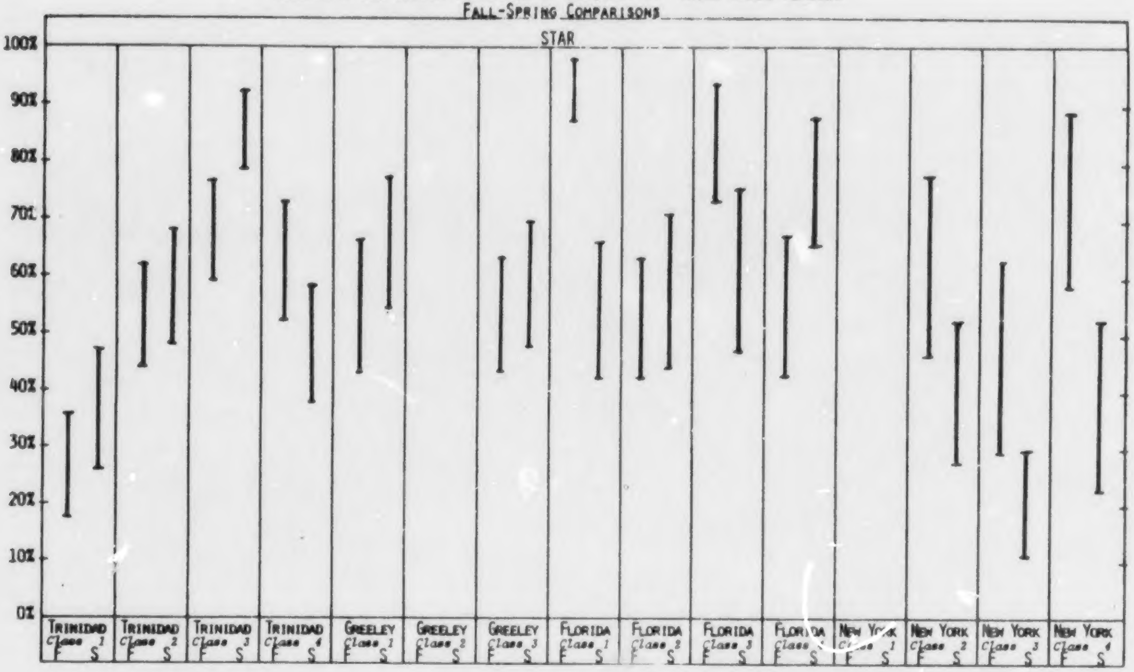
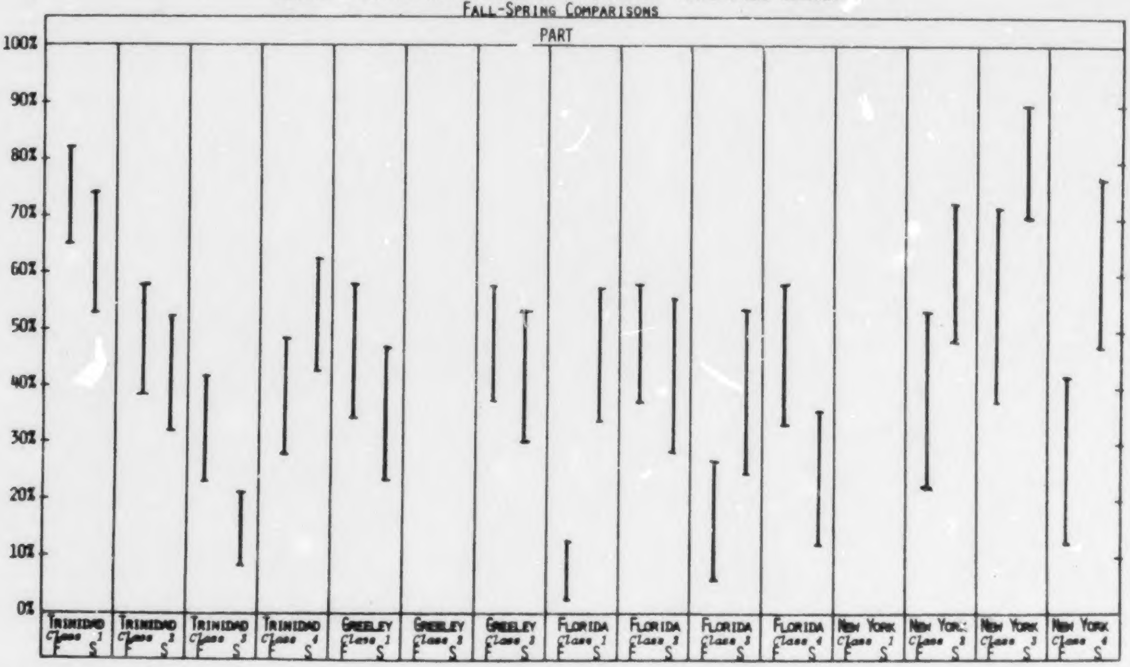


FIGURE 200
GOODMAN'S CONFIDENCE INTERVALS OF CATEGORY 5: THIRD GRADE CLASSES
FALL-SPRING COMPARISONS



Fall-Spring Comparisons of Category 6 Items for First Grade Classes

The New York classes did not change over time in the kind of behavior occurring during child-child interactions (see Figures 201-202). Children in classes 1 and 2 in Florida spent more time passively listening and watching other children in the spring whereas class 4 children spent less time in this activity in the spring. During the spring children in class 1 in Florida also used materials less frequently in their interactions with peers. Because of low reliability these comparisons could not be made for Trinidad and Greeley.

Figure 201
Goodman's Confidence Intervals of Category 6: First Grade Classes
Fall-Spring Comparisons

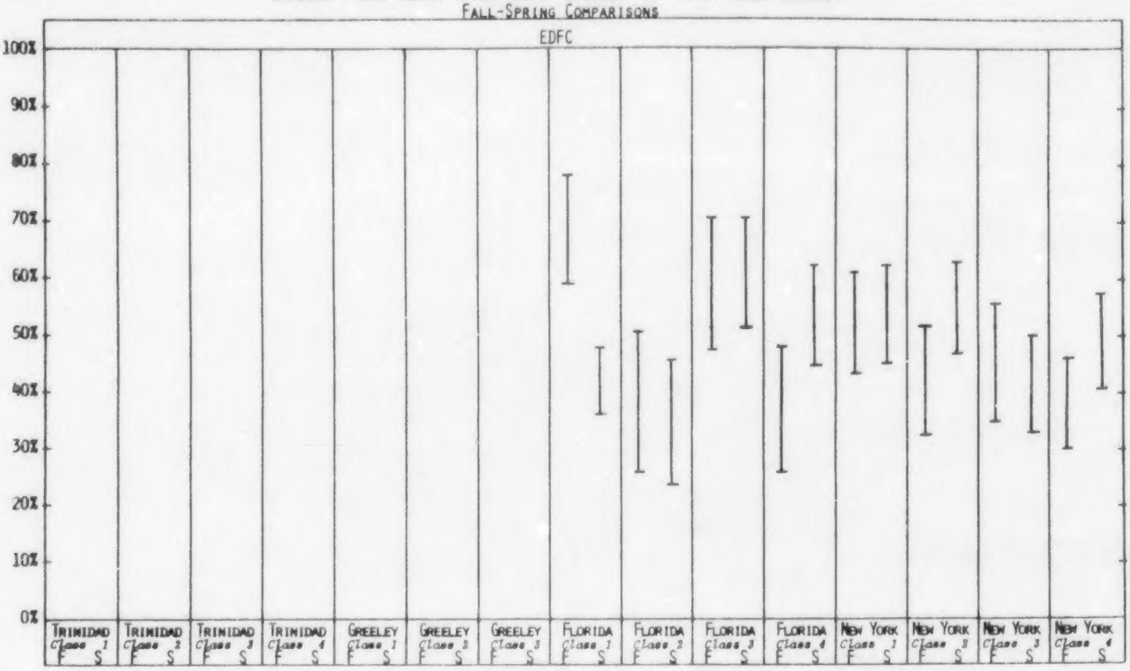
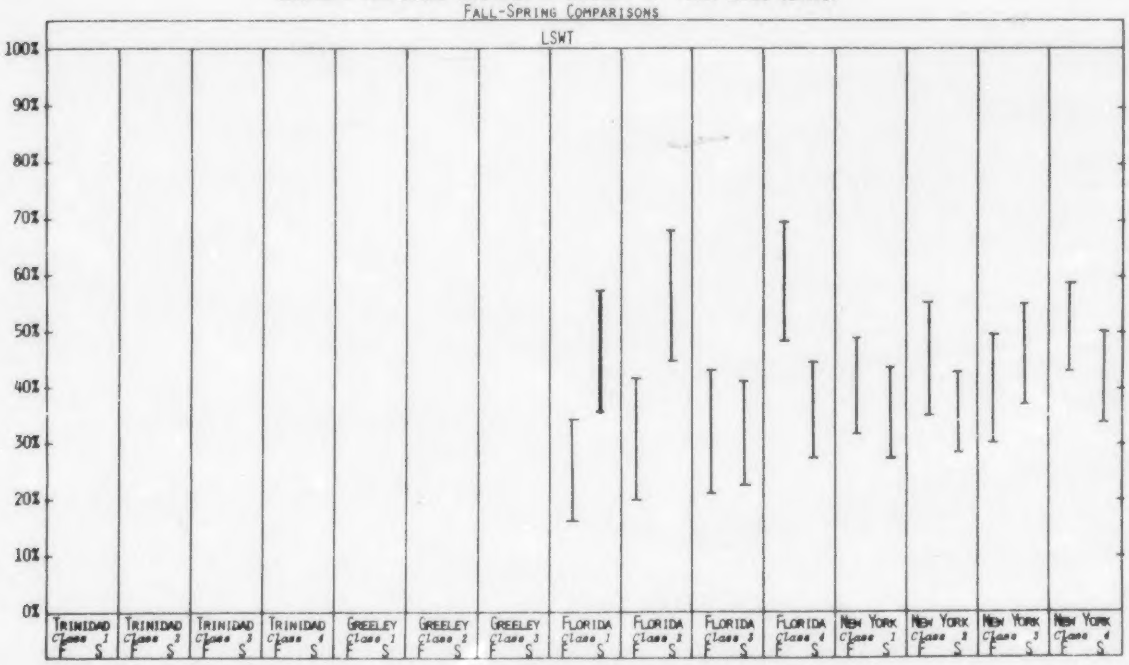


Figure 202
Goodman's Confidence Intervals of Category 6: First Grade Classes
Fall-Spring Comparisons



Fall-Spring Comparisons of Category 6 Items for Third Grade Classes

The behaviors recorded during child-child interactions did not vary in either New York or Florida (see Figures 203-204). Because of low reliability, fall-spring changes in Trinidad and Greeley could not be analyzed.

Figure 203
Goodman's Confidence Intervals of Category 6: Third Grade Classes
Fall-Spring Comparisons

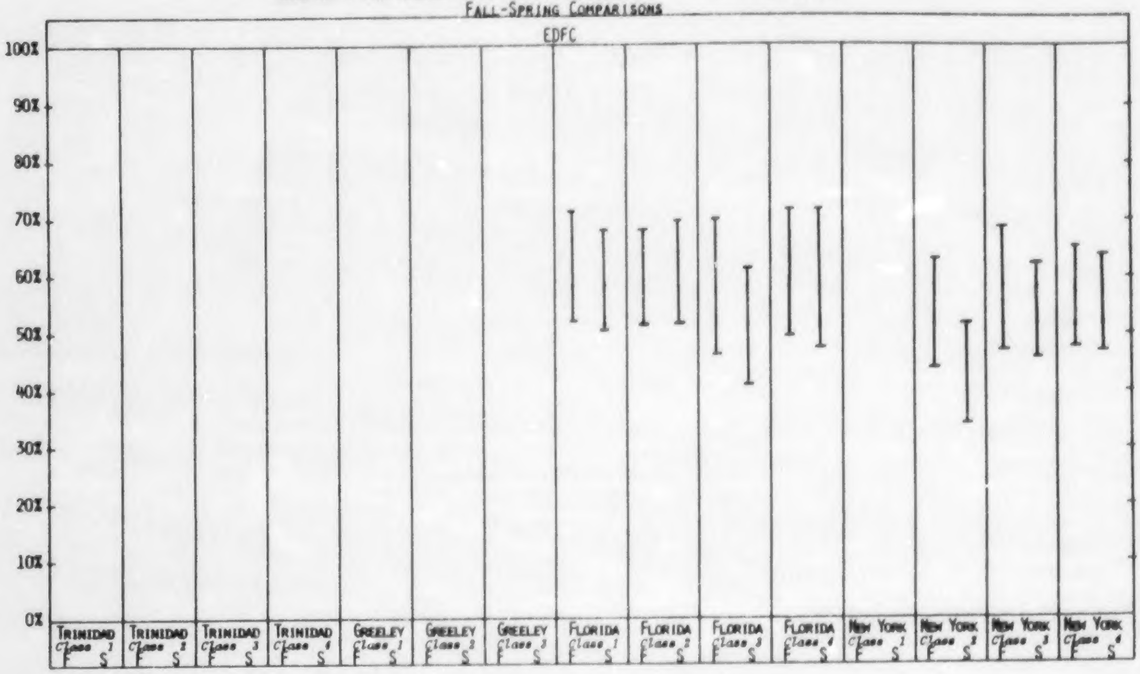
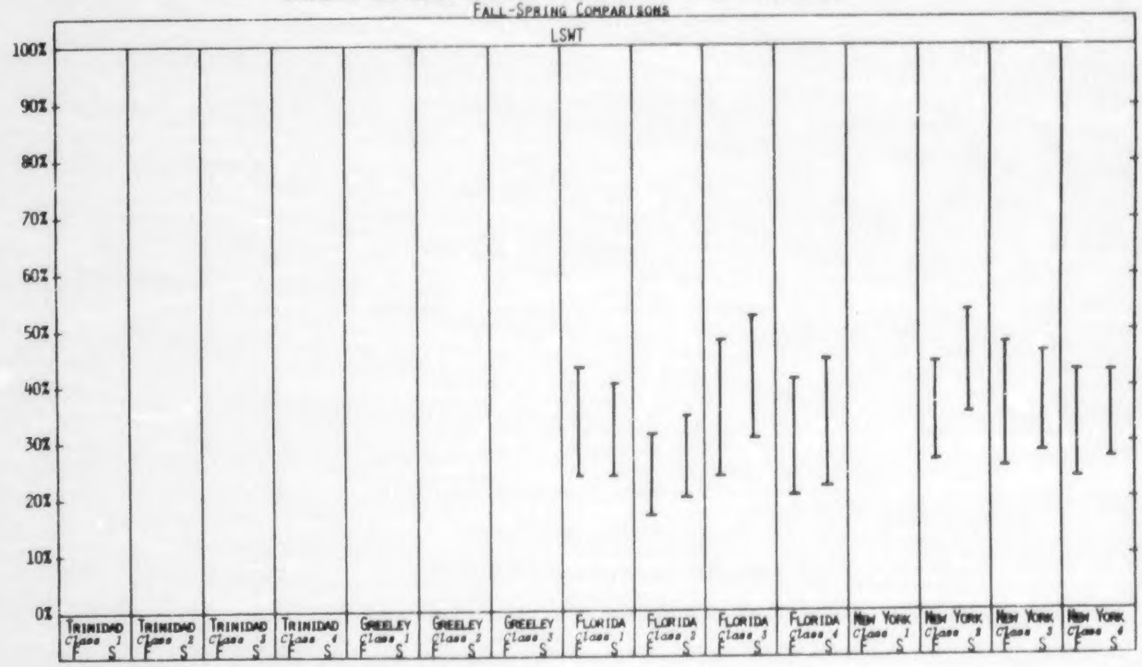


Figure 204
Goodman's Confidence Intervals of Category 6: Third Grade Classes
Fall-Spring Comparisons



Fall-Spring Comparisons of Category 7 Items for First Grade Classes

Only one class in Greeley varied in the amount of verbal and nonverbal behavior (see Figures 205-207). The children in class 2 in this center were more verbal in the spring. Across-time comparisons could not be made in the other centers.

FIGURE 205
GOODMAN'S CONFIDENCE INTERVALS OF CATEGORY 7: FIRST GRADE CLASSES
FALL-SPRING COMPARISONS

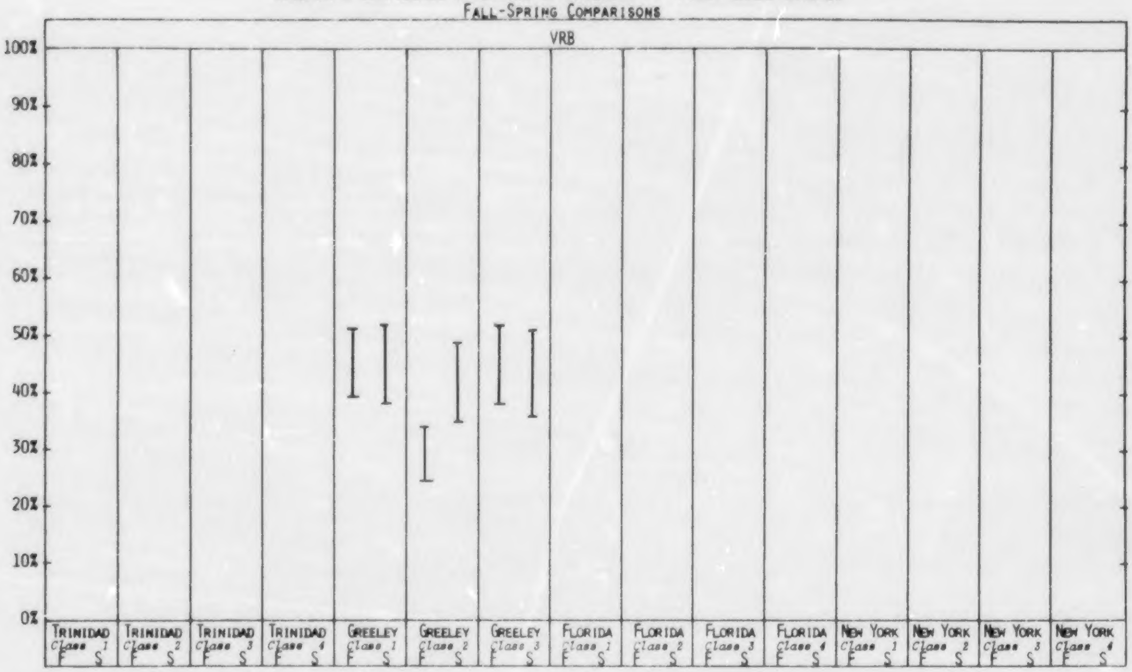


FIGURE 206
GOODMAN'S CONFIDENCE INTERVALS OF CATEGORY 7: FIRST GRADE CLASSES
FALL-SPRING COMPARISONS

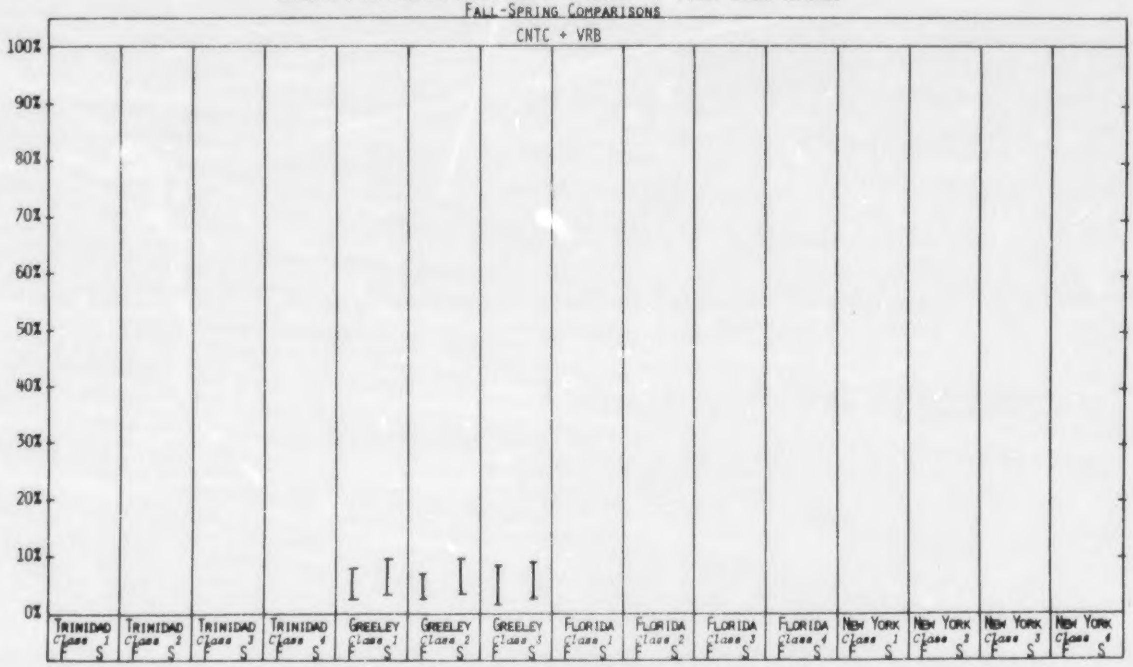
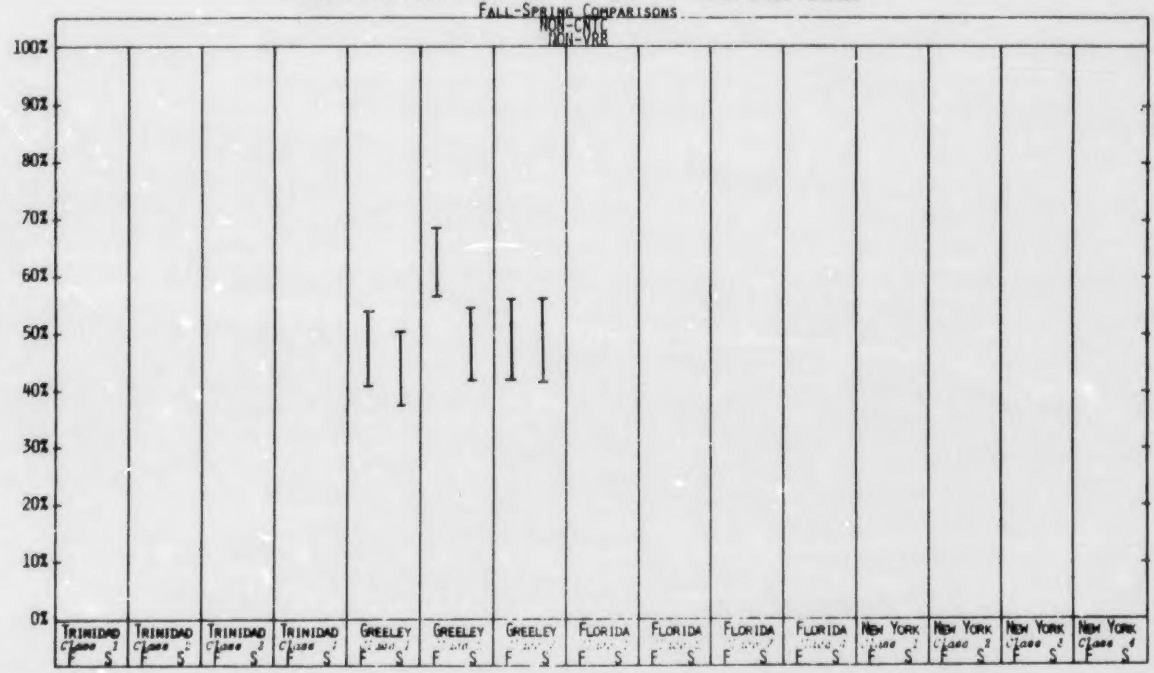


Figure 207
Goodman's Confidence Intervals of Category 7: First Grade Classes
Fall-Spring Comparisons



Fall-Spring Comparisons of Category 7 Items for Third Grade Classes

The fall-spring comparisons showed no differences in the amount of verbal behavior in the two Greeley third grade classes (see Figures 208-210). Fall-spring comparisons could not be made in the other centers.

Figure 208
Goodman's Confidence Intervals of Category 7: Third Grade Classes
Fall-Spring Comparisons

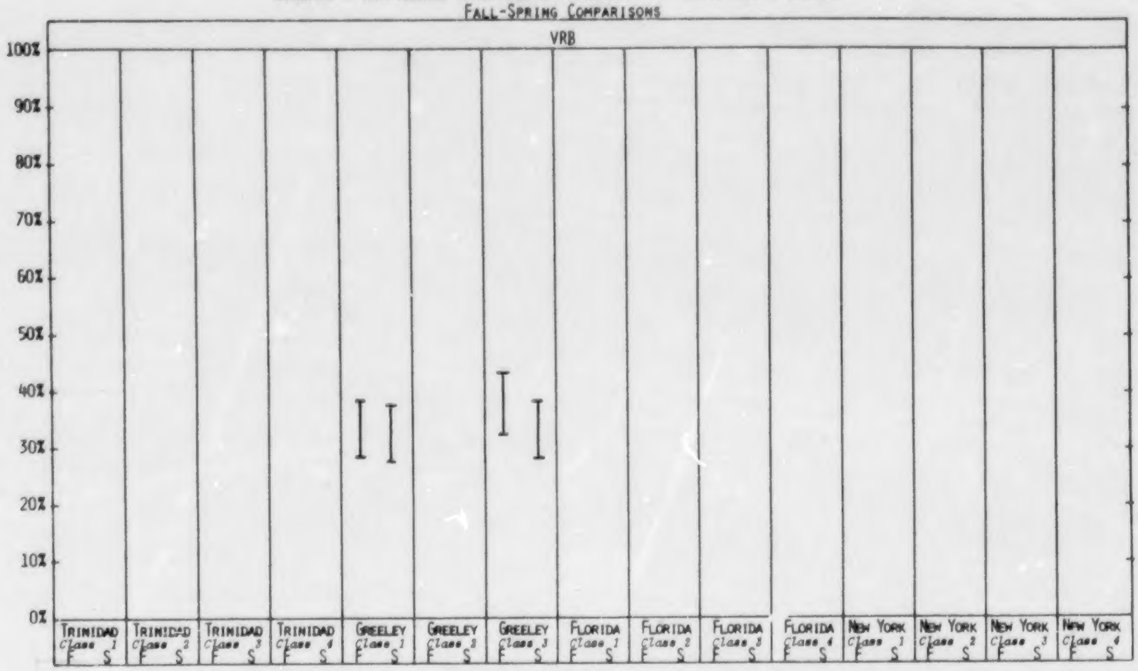


Figure 209
Goodman's Confidence Intervals of Category 7: Third Grade Classes
Fall-Spring Comparisons

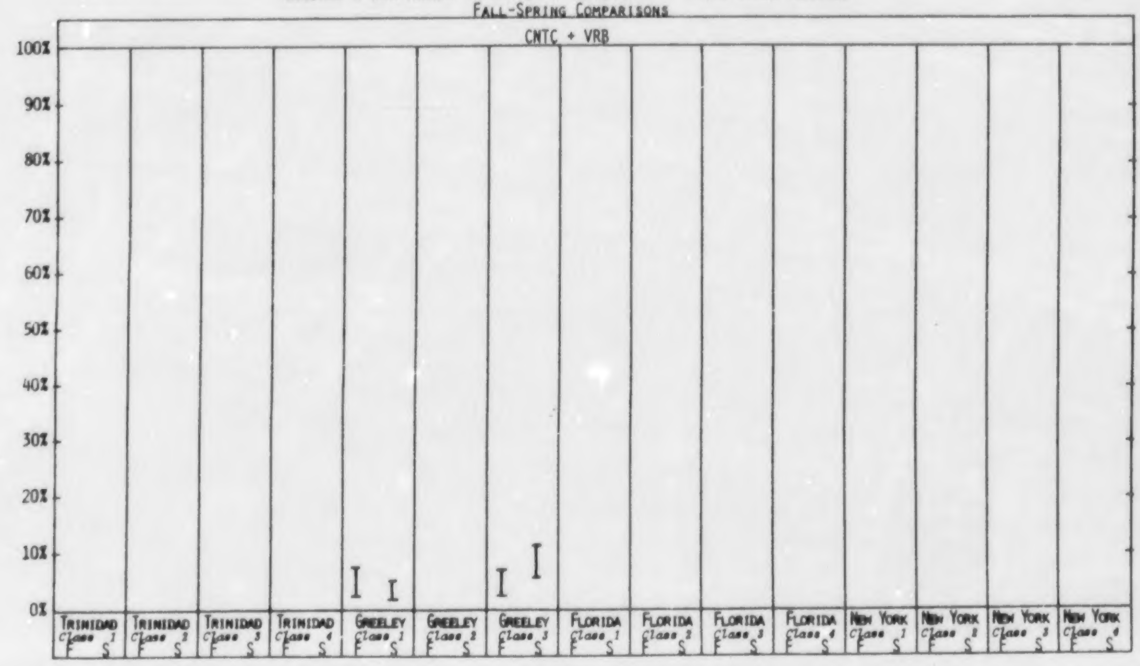
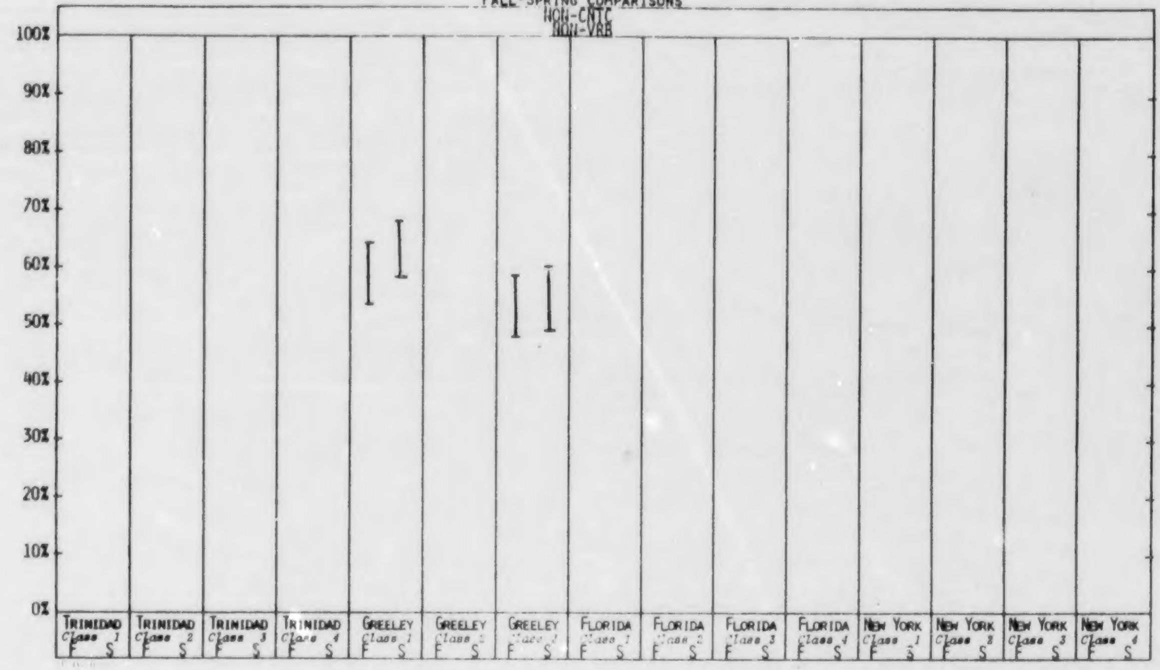


Figure 210

Goodman's Confidence Intervals of Category 7: Third Grade Classes

Fall-Spring Comparisons



Fall-Spring Comparisons of Category 9 Items for First Grade Classes

Except for New York first graders, who did not vary in this category across time, first graders tended to use object materials more often and written materials and picture materials less often during the second data collection period (see Figures 211-213).

Class 3 students in Florida used object materials more frequently in the spring and class 4 students at this site used written materials less often. Two of the first grade classes in Trinidad varied in material usage. Picture materials were used less often in class 2 in the spring and written materials were used more frequently in class 3. Object materials were used more frequently in all the first grade classes in Greeley in the spring. Class 3 also used written materials less often.

Figure 211
Goodman's Confidence Intervals of Category 9: First Grade Classes
Fall-Spring Comparisons

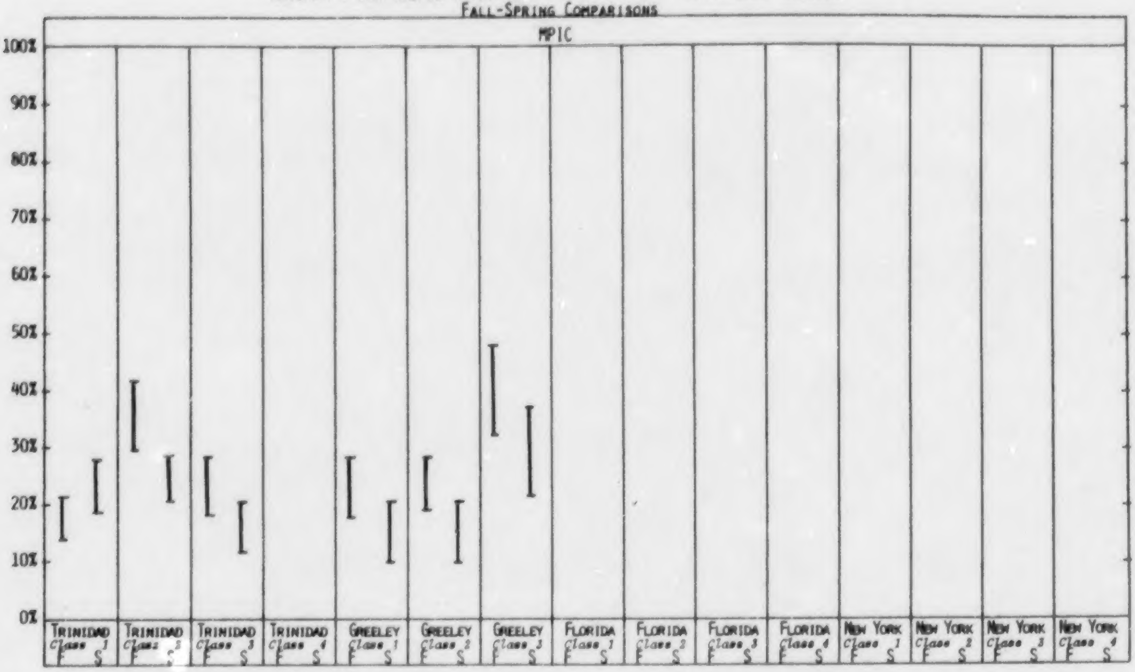


Figure 212
Goodman's Confidence Intervals of Category 9: First Grade Classes
Fall-Spring Comparisons

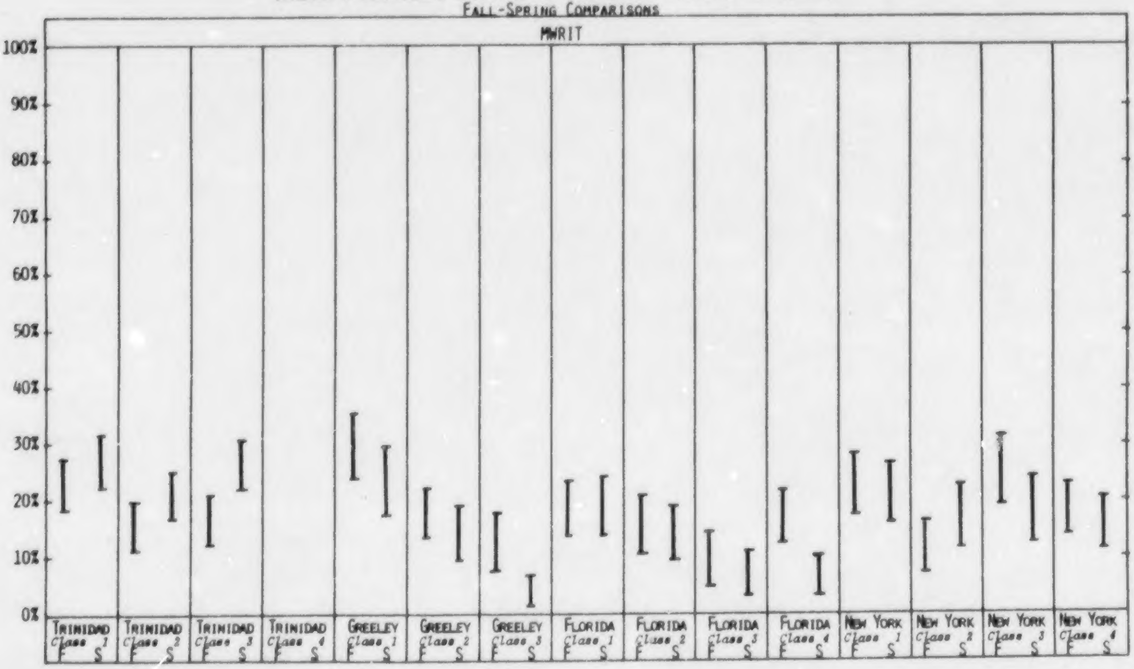
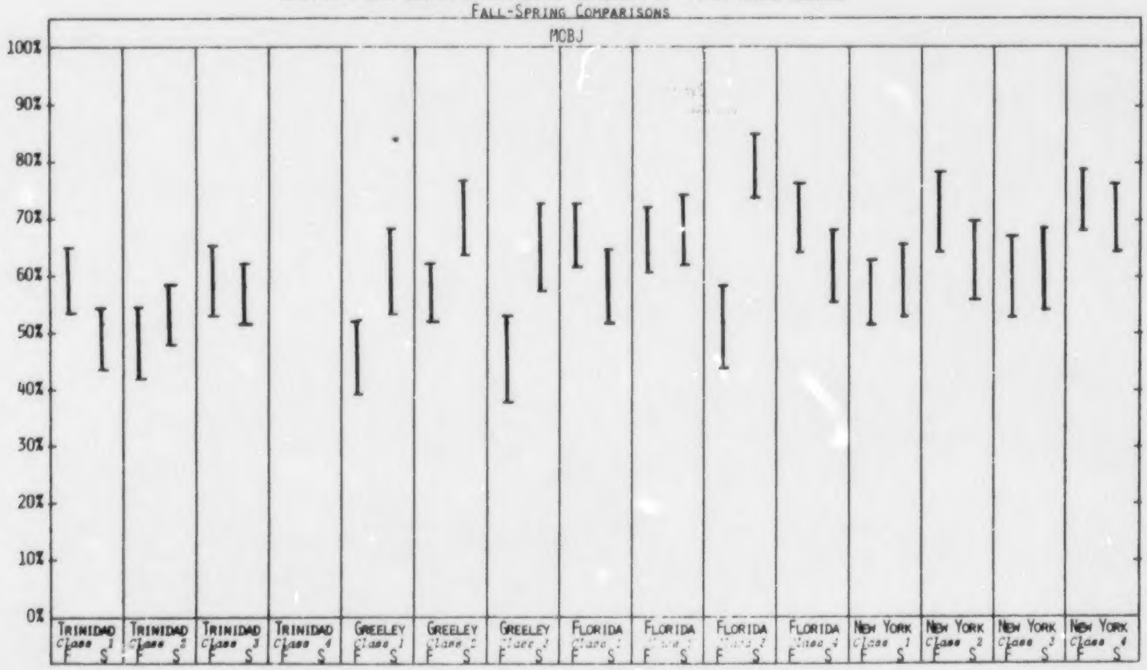


FIGURE 213

GOODMAN'S CONFIDENCE INTERVALS OF CATEGORY 9: FIRST GRADE CLASSES

FALL-SPRING COMPARISONS



Fall-Spring Comparisons of Category 9 Items for Third Grade Classes

Eight of the classes changed with respect to the kind of material used (see Figures 214-216). Most of these classes used object materials more often in the spring and written materials less often.

Classes 1 and 2 in Florida used written materials less often in the spring and object materials more often. Children in three of the New York classes (2, 3 and 4) were less often engaged in reading or writing activities in the spring. Class 2 children also used object materials more frequently. Only class 2 in Trinidad differed in material usage. Unlike New York and Florida students, these students were more often reading and writing in the spring. Both Greeley third grade classes changed over time with respect to material usage. Class 1 used more object materials and fewer written materials and class 3 used more picture materials.

Figure 214

Goodman's Confidence Intervals of Category 9: Third Grade Classes

Fall-Spring Comparisons

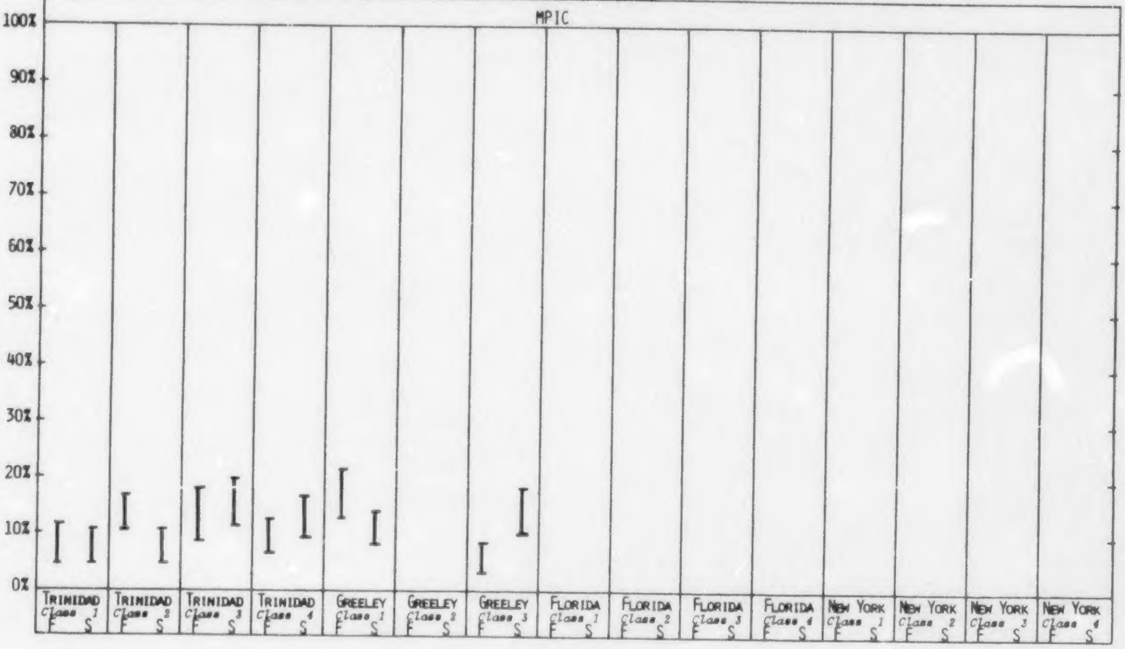
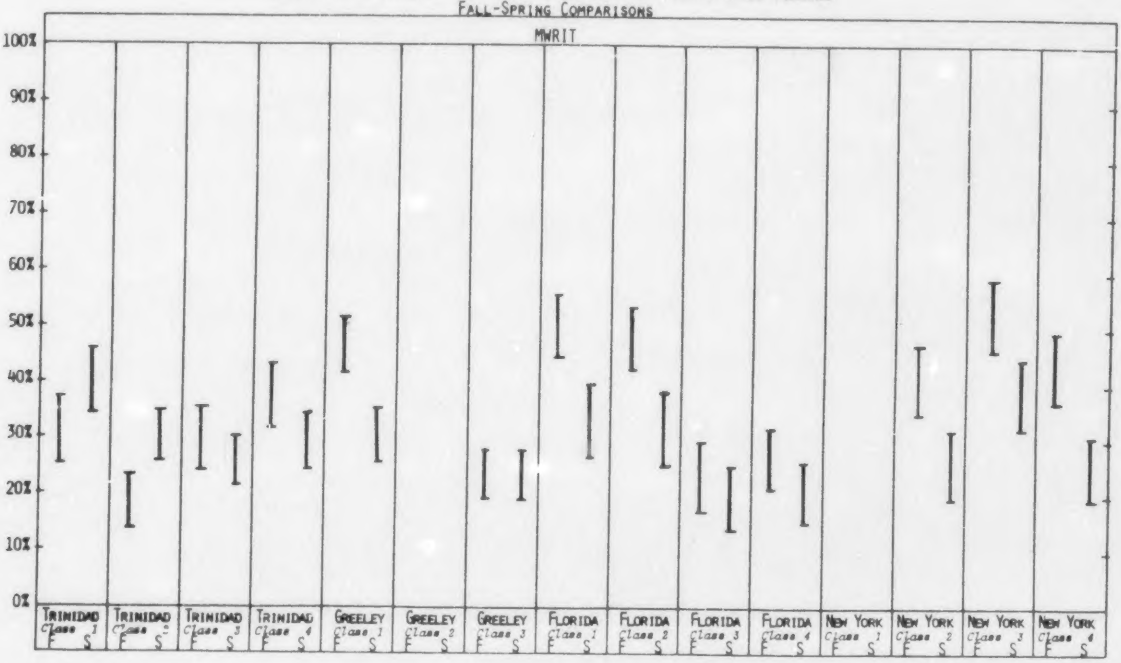


Figure 215

Goodman's Confidence Intervals of Category 9: Third Grade Classes

Fall-Spring Comparisons



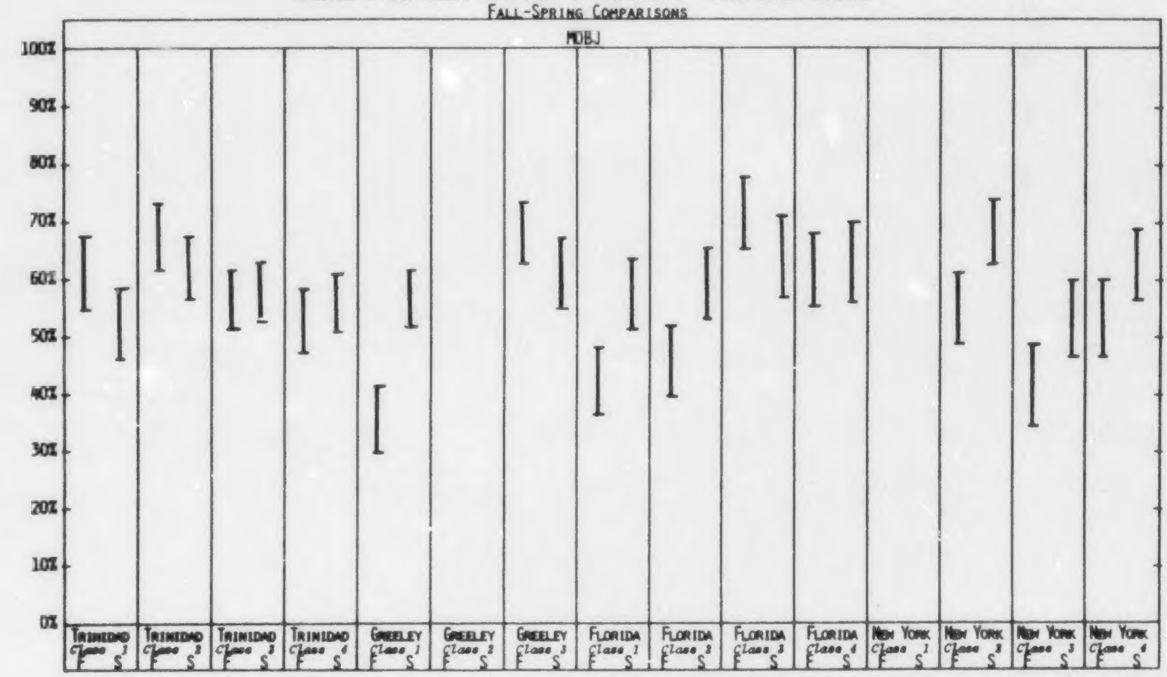


Figure 216
Goodman's Confidence Intervals of Category 9: Third Grade Classes
Fall-Spring Comparisons

Fall-Spring Comparisons of Category 12 Items for First Grade Classes

The size of the group children were in changed in eight of the fourteen first grade classes over the two observation periods (see Figures 217-220). On the whole, first graders were more often in small groups of three to five students during the spring collection and were less often in groups of six or more.

Only one Florida class, class 3, showed change in this variable. The students in this class were more often by themselves or with one other child in the spring and were less frequently in groups containing more than five children. First graders in the four New York classes were also more often by themselves and were less often in groups containing six or more students during the spring observations. In addition, two of the classes in this center had more occurrence of groups of three to five students in the spring and another class had more occurrence of groups of two. Two of the classes in Trinidad, class 1 and class 3, followed this pattern. Groups of three to five students were observed more frequently in the spring and groups of six or more were observed less often. There was also more occurrence of groups of three to five students in class 1 in Greeley during the spring.

Figure 217
Goodman's Confidence Intervals of Category 12: First Grade Classes
Fall-Spring Comparisons

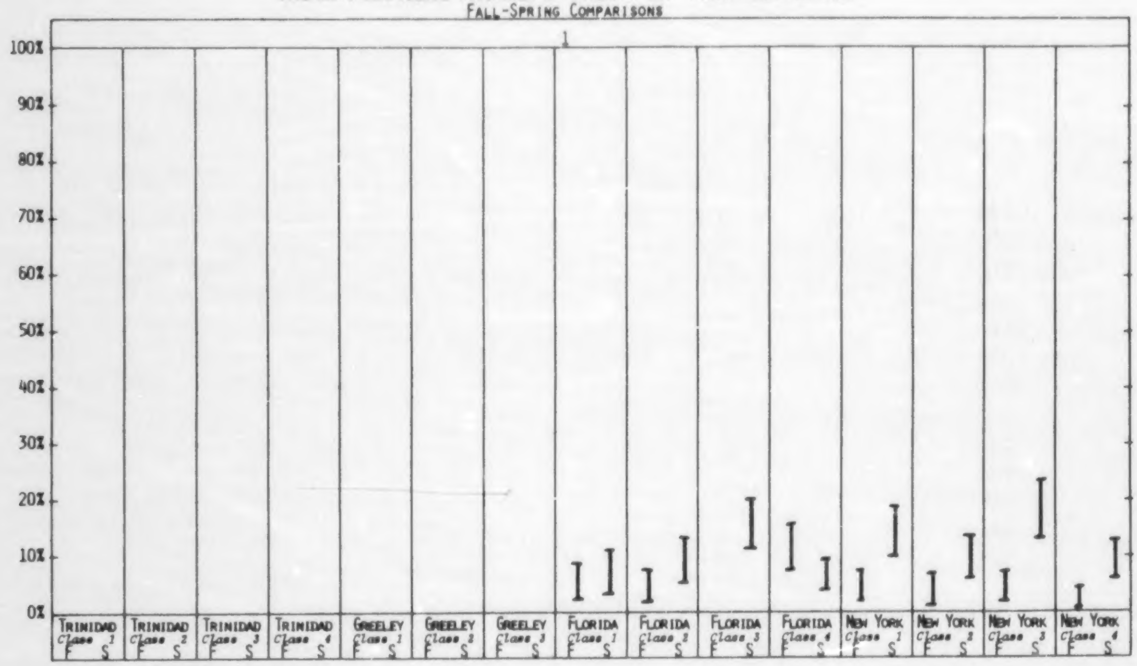


Figure 218
Goodman's Confidence Intervals of Category 12: First Grade Classes
Fall-Spring Comparisons

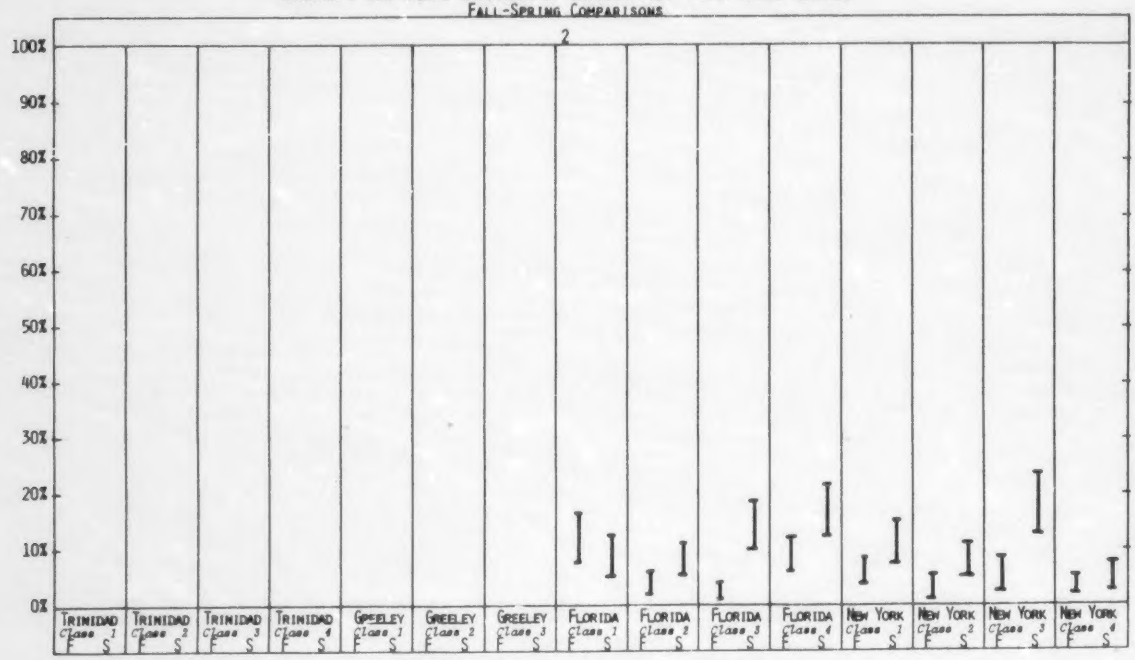


Figure 219
Goodman's Confidence Intervals of Category 12: First Grade Classes
Fall-Spring Comparisons

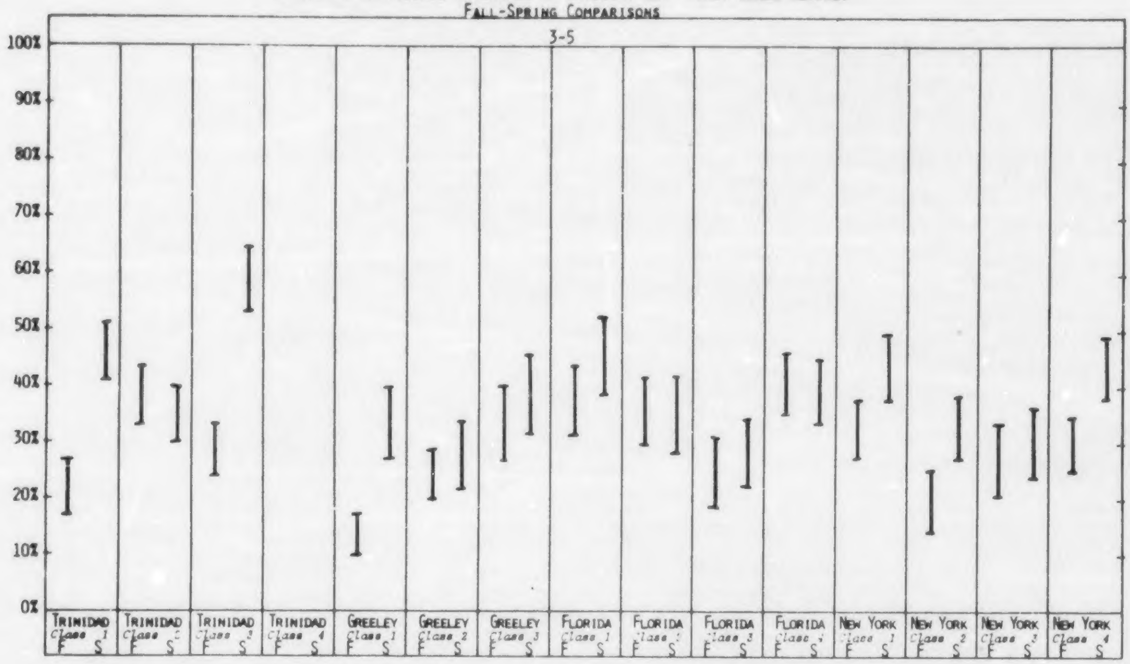
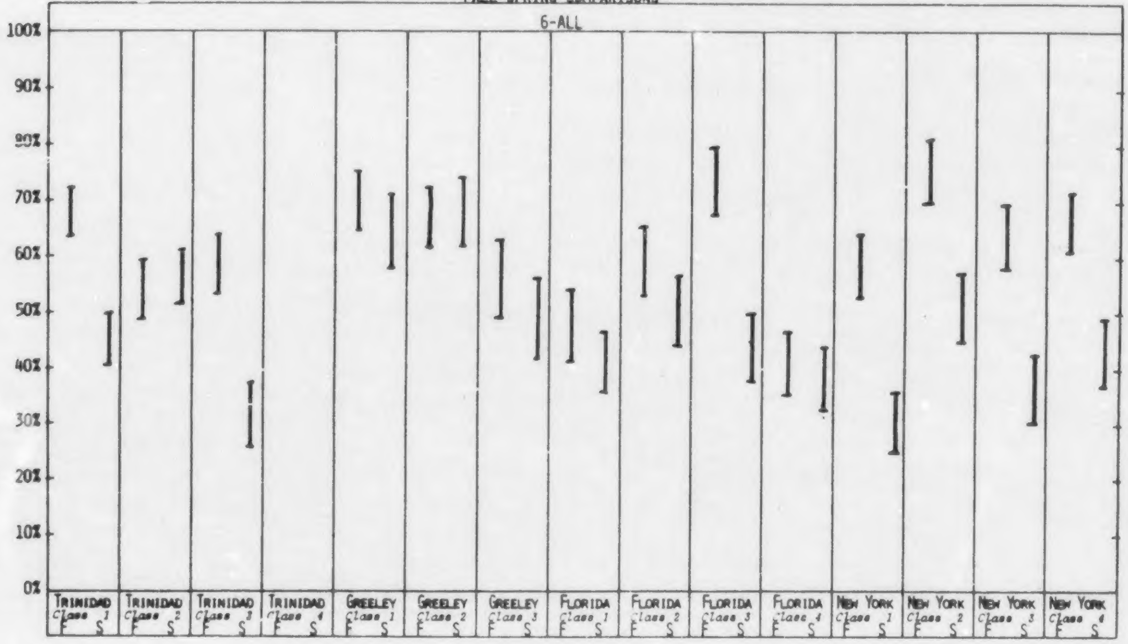


Figure 220
Goodman's Confidence Intervals of Category 12: First Grade Classes
Fall-Spring Comparisons



Fall-Spring Comparisons of Category 12 Items for Third Grade Classes

Changes in the size of the group children were in occurred in seven of the fourteen third grade classes (see Figures 221-224). Most of these changes were similar to those occurring in the first grade classes, i.e., children were more often in small groups in the spring and were less often in large groups. During the spring observations small groups of three to five students characterized classes 3 and 4 in Florida and classes 1 and 4 in Trinidad. Children in classes 3 and 2 in New York were more often by themselves in the spring and were less often in groups containing more than five students. Students in classes 1 and 3 in Trinidad were also less often in groups of more than five students in the spring.

Class 2 in Trinidad did not follow this pattern. The students in this class were more often in large groups in the spring and were less often in small groups containing three to five children. Neither of the Greeley third grade classes changed on this variable.

Figure 221
Goodman's Confidence Intervals of Category 12: Third Grade Classes
Fall-Spring Comparisons

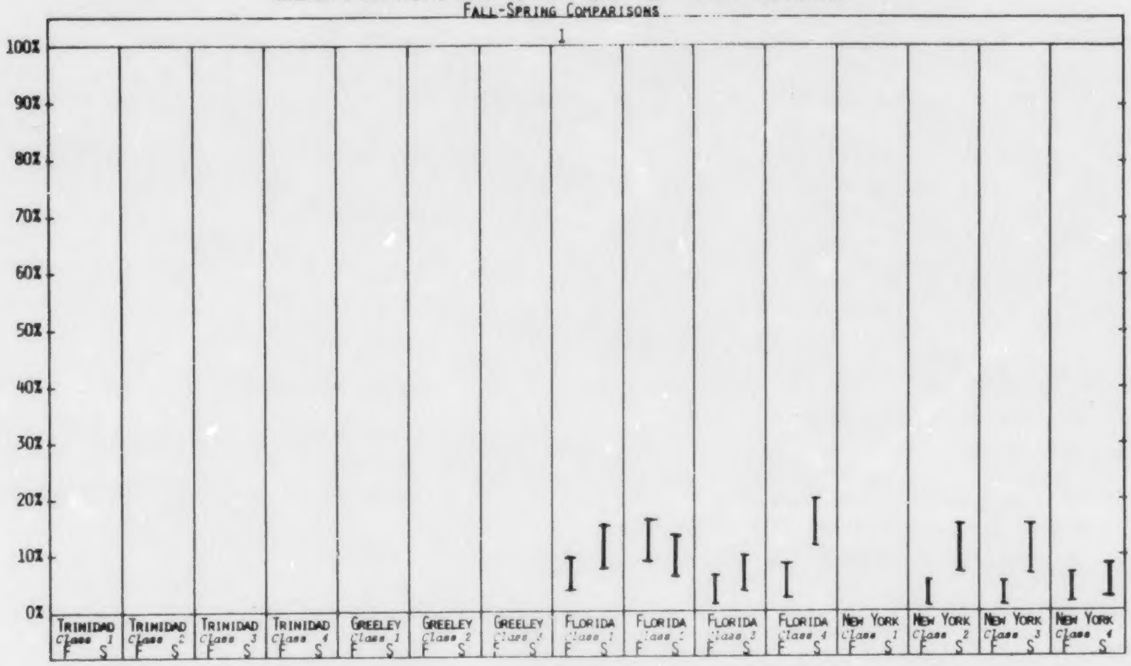


Figure 222
Goodman's Confidence Intervals of Category 12: Third Grade Classes
Fall-Spring Comparisons

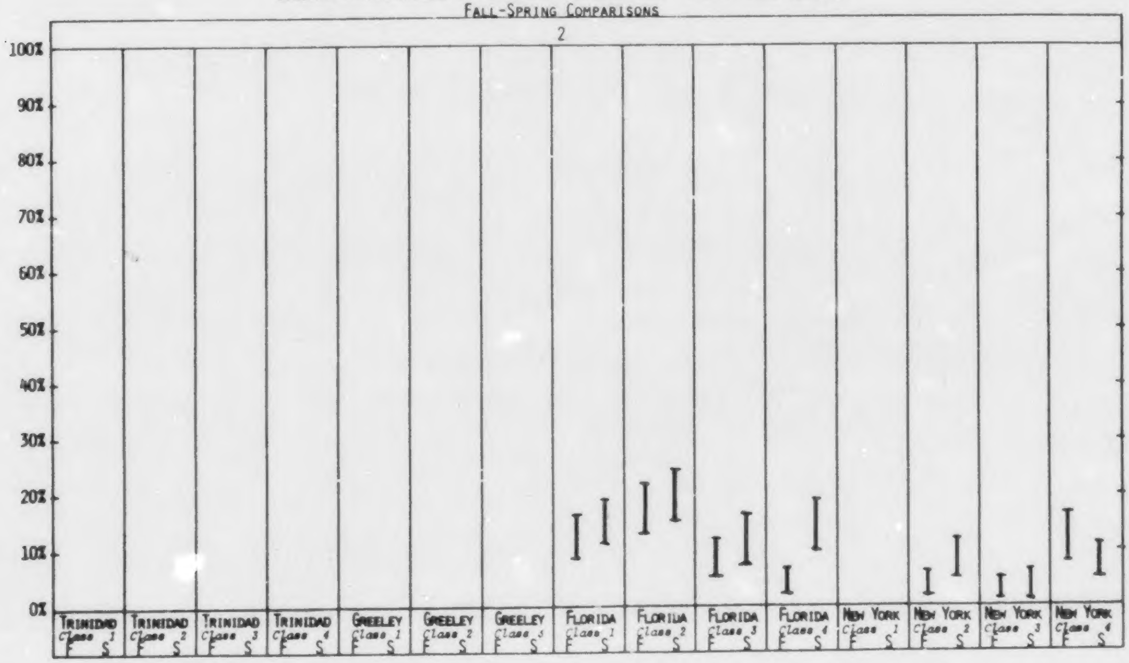


Figure 223
Goodman's Confidence Intervals of Category 12: Third Grade Classes
Fall-Spring Comparisons

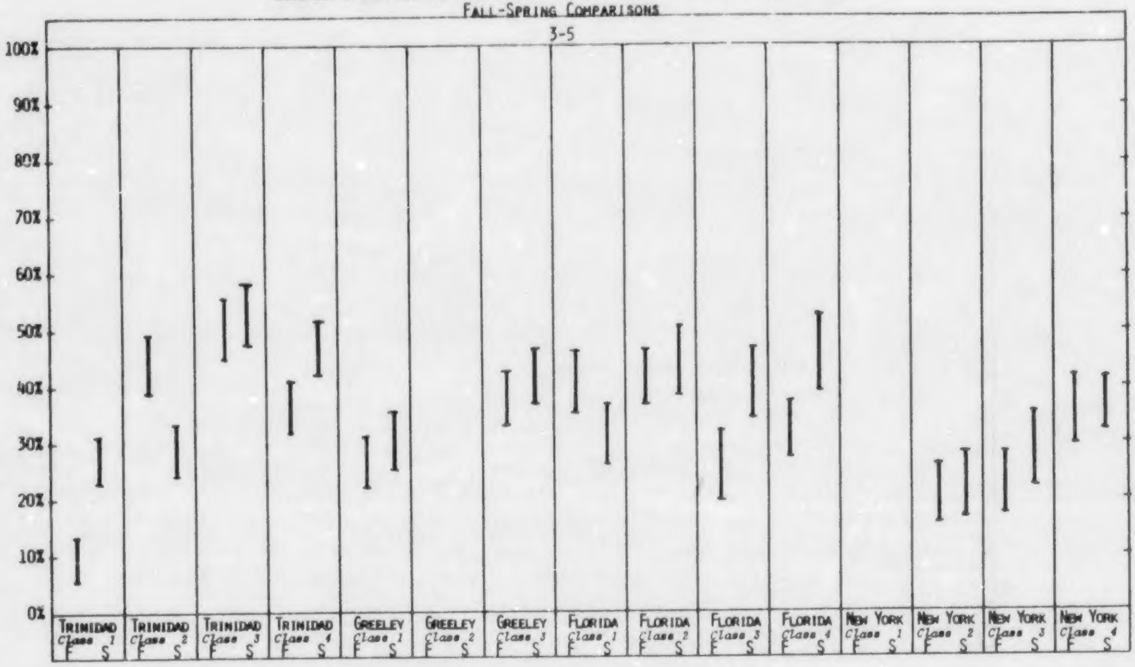
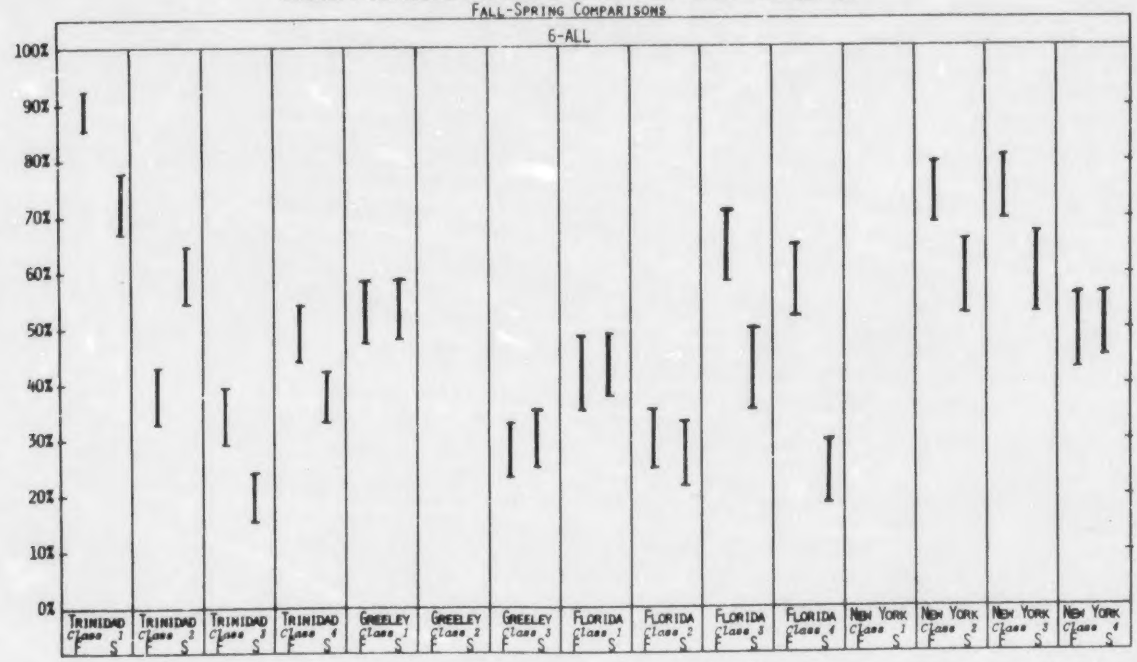


Figure 224
Goodman's Confidence Intervals of Category 12: Third Grade Classes
Fall-Spring Comparisons



Fall-Spring Comparisons of Category 15 Items for First Grade Classes

Trinidad classes tended to become more teacher-directed over time whereas the Florida and Greeley classes became more child-centered (see Figures 225-229). In the fall, children in classes 1 and 3 in Trinidad were more often involved in self-selected activities whereas in the spring they were more often involved in activities that were directed or structured by an adult. The students in classes 3 and 4 in Florida were more autonomous in the spring, spending more time in activities of their choice. The opposite was true for class 1 students here. They spent less time in the spring in self-selected activities.

Classes 1 and 2 in Greeley were characterized by child-selected activities in the spring. Class 3, however, was more teacher-directed during the second data collection period. Children in class 2 in New York spent less time in self-selected activities during the second data collection period whereas children in class 4 spent more time in activities of this nature.

FIGURE 225
GOODMAN'S CONFIDENCE INTERVALS OF CATEGORY 15: FIRST GRADE CLASSES
FALL-SPRING COMPARISONS

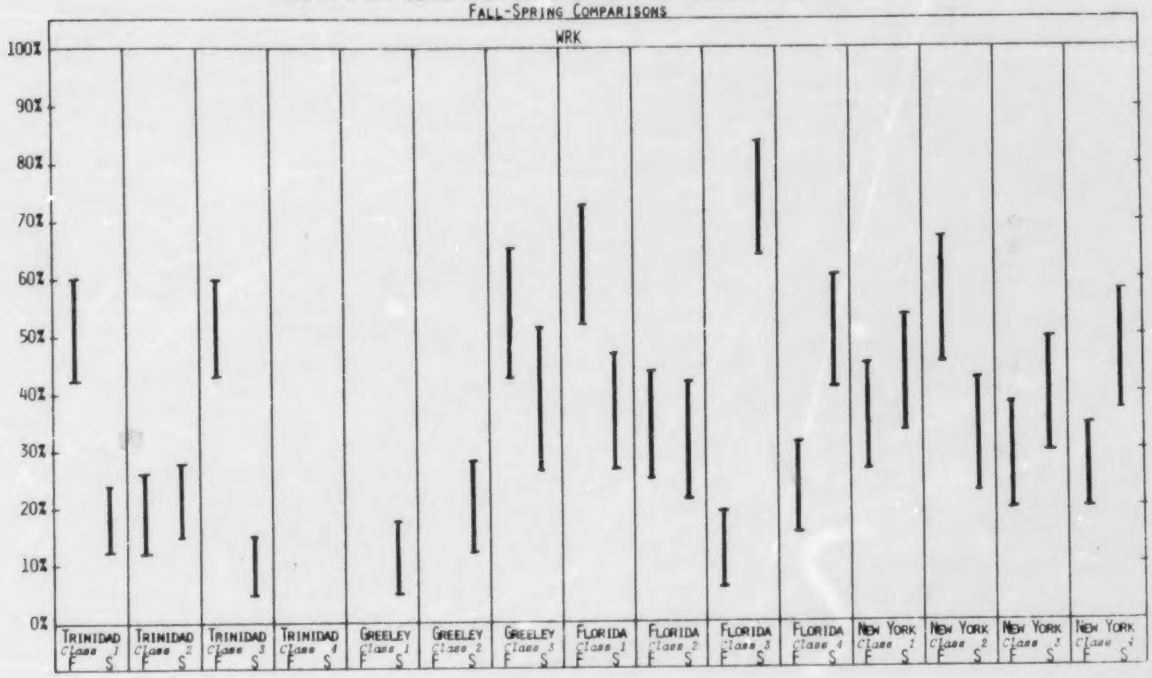


FIGURE 226
GOODMAN'S CONFIDENCE INTERVALS OF CATEGORY 15: FIRST GRADE CLASSES
FALL-SPRING COMPARISONS

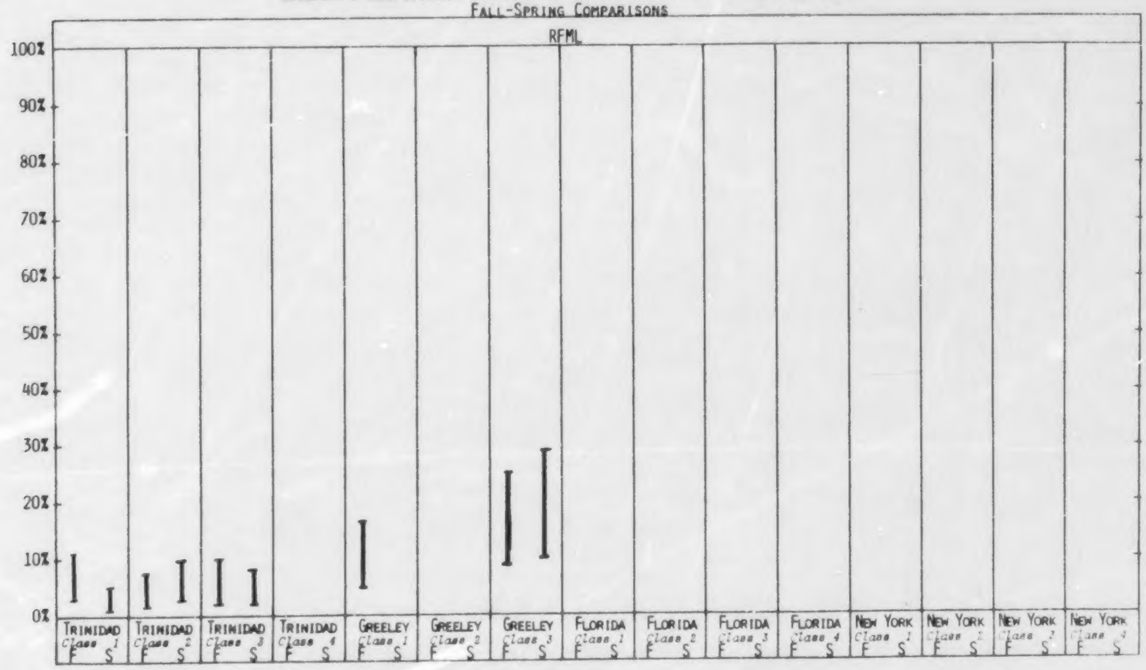


FIGURE 227
GOODMAN'S CONFIDENCE INTERVALS OF CATEGORY 15: FIRST GRADE CLASSES
FALL-SPRING COMPARISONS

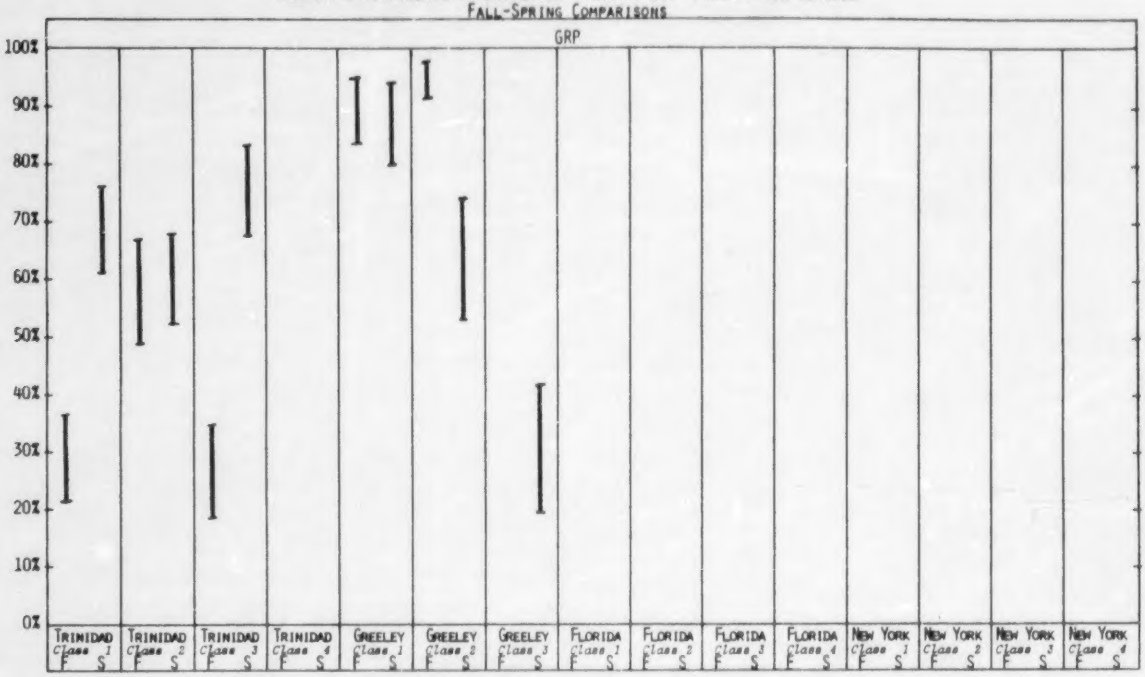


FIGURE 228
GOODMAN'S CONFIDENCE INTERVALS OF CATEGORY 15: FIRST GRADE CLASSES
FALL-SPRING COMPARISONS

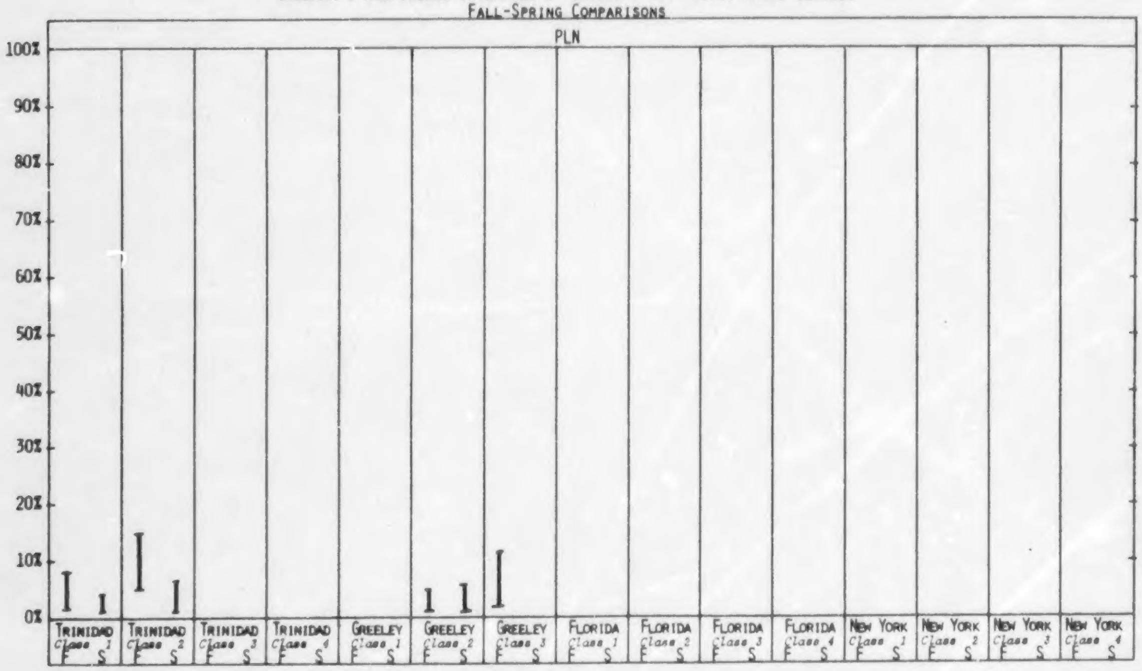
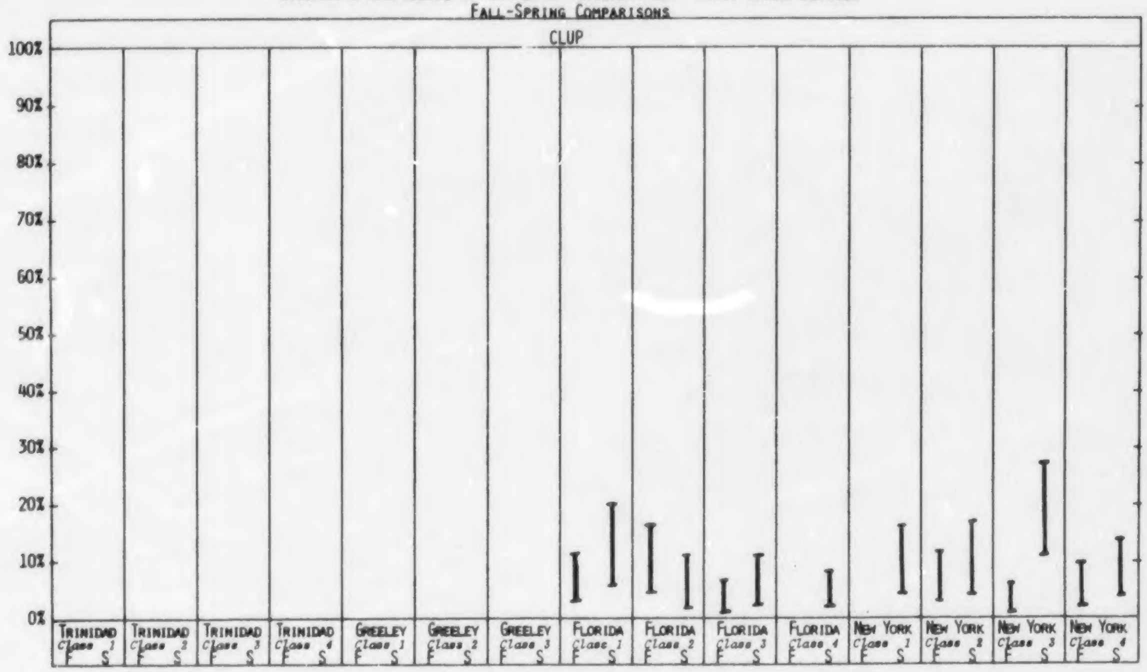


FIGURE 229

GOODMAN'S CONFIDENCE INTERVALS OF CATEGORY 15: FIRST GRADE CLASSES

FALL-SPRING COMPARISONS



Fall-Spring Comparisons of Category 15 Items for Third Grade Classes

Child-selected activities were observed less often in five of the third grade classes during the second data collection period and were observed more often in one class (see Figures 230-234).

Class 1 in Florida, classes 3 and 4 in New York, class 2 in Trinidad and class 1 in Greeley showed less incidence of child-selected activities in the spring than in the fall. Children in class 2 in Trinidad and class 1 in Greeley were more often involved in teacher-structured activities in the spring. Trinidad class 1 children became more autonomous and less teacher-directed over the course of the school year.

Figure 230
Goodman's Confidence Intervals of Category 15: Third Grade Classes
Fall-Spring Comparisons

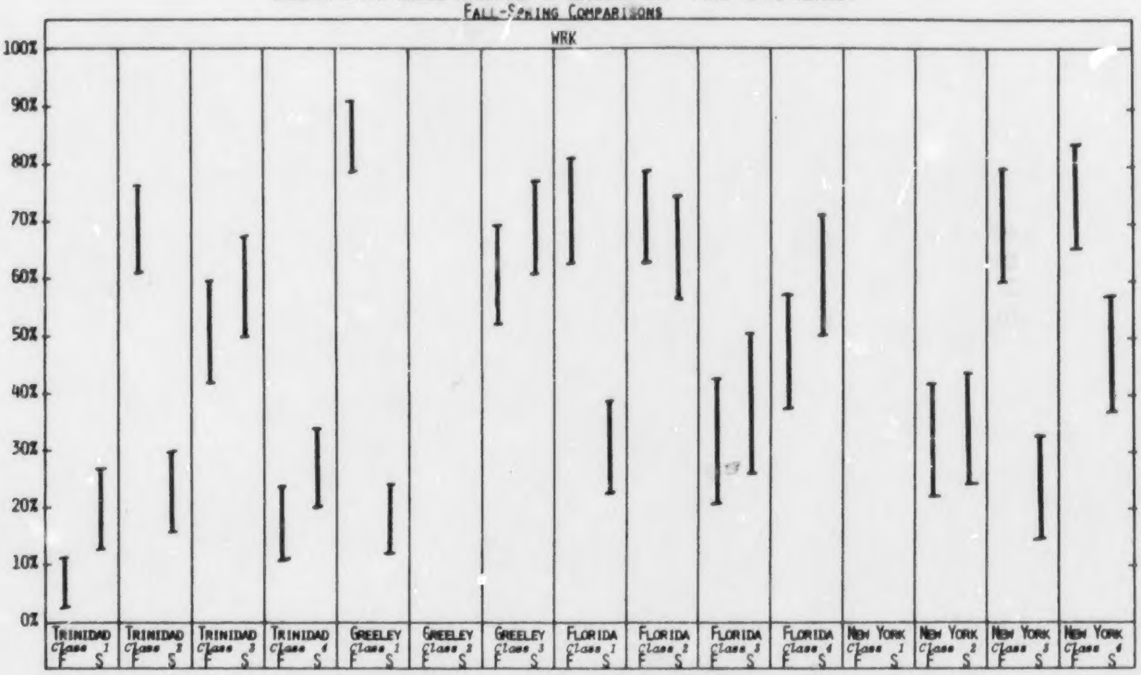


Figure 231
Goodman's Confidence Intervals of Category 15: Third Grade Classes
Fall-Spring Comparisons

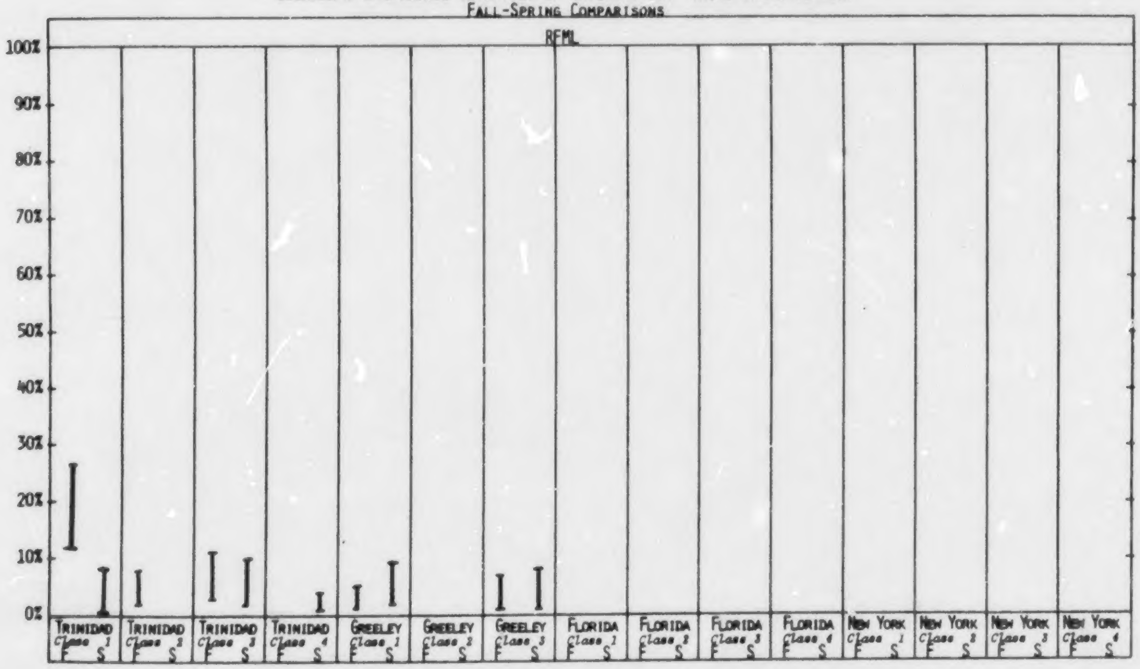


FIGURE 232

GOODMAN'S CONFIDENCE INTERVALS OF CATEGORY 15: THIRD GRADE CLASSES

FALL-SPRING COMPARISONS

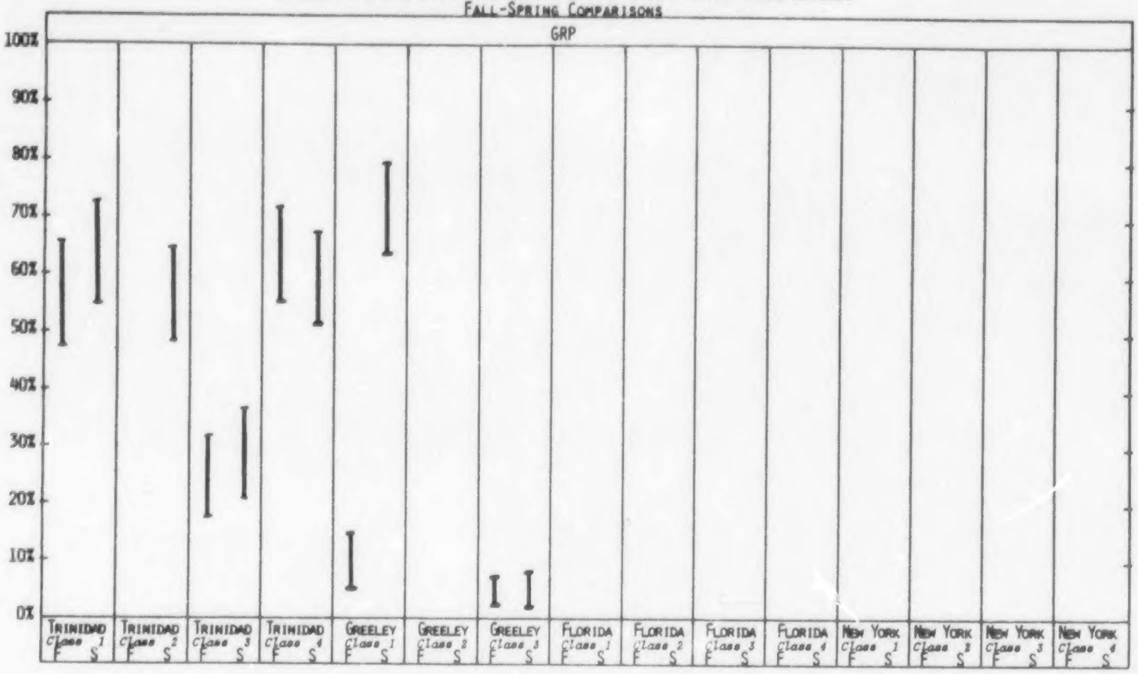


FIGURE 233

GOODMAN'S CONFIDENCE INTERVALS OF CATEGORY 15: THIRD GRADE CLASSES

FALL-SPRING COMPARISONS

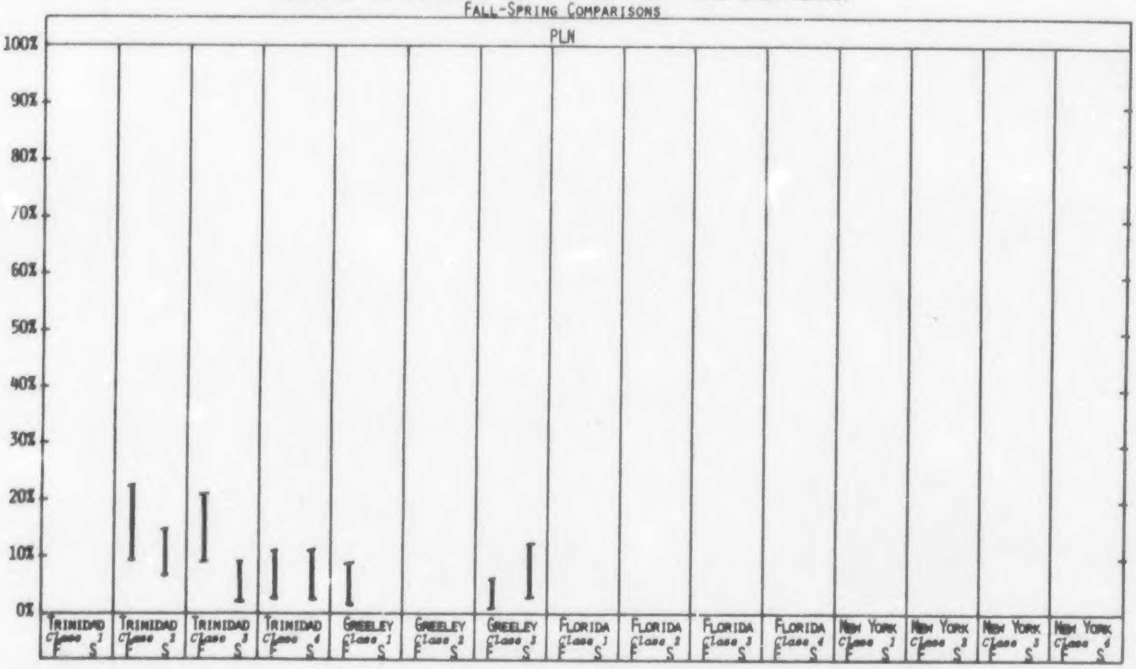
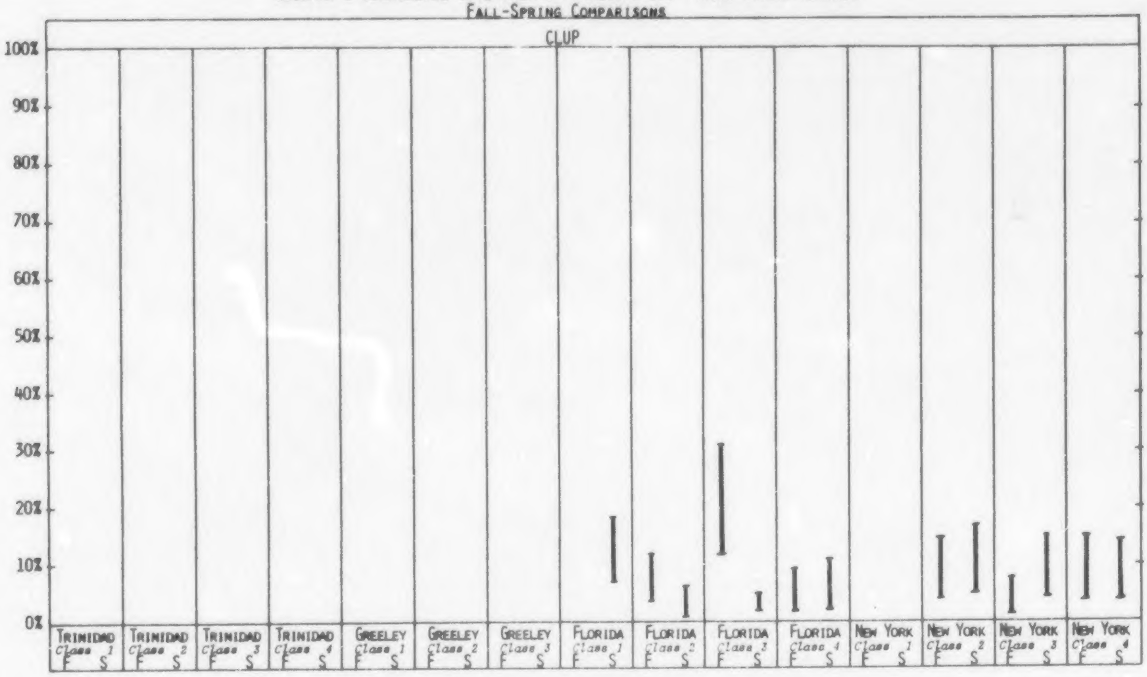


FIGURE 234
GOODMAN'S CONFIDENCE INTERVALS OF CATEGORY 15: THIRD GRADE CLASSES
FALL-SPRING COMPARISONS



Fall-Spring Comparisons of Interaction Types for First Grade Classes

None of the changes in interaction types was consistent across all centers (see Figures 235-240). New York first grade classes showed no change in this variable. In Florida, child-adult/child-child/child-material interactions were more frequent in the spring in classes 1 and 2 and child-adult/child-material interactions were less frequent in classes 3 and 4. Child-child interactions were seen more often in class 4 in the spring.

Classes 2 and 3 in Trinidad showed less occurrence of child-adult interactions in the spring than in the fall. Child-child/child-material interactions were seen more frequently in class 2 in the spring. Child-material interactions were less frequent in class 2 in Greeley during the second data collection periods and child-child/child-material interactions were more frequent in class 3.

FIGURE 235
GOODMAN'S CONFIDENCE INTERVALS OF INTERACTION TYPES: FIRST GRADE CLASSES
FALL-SPRING COMPARISONS

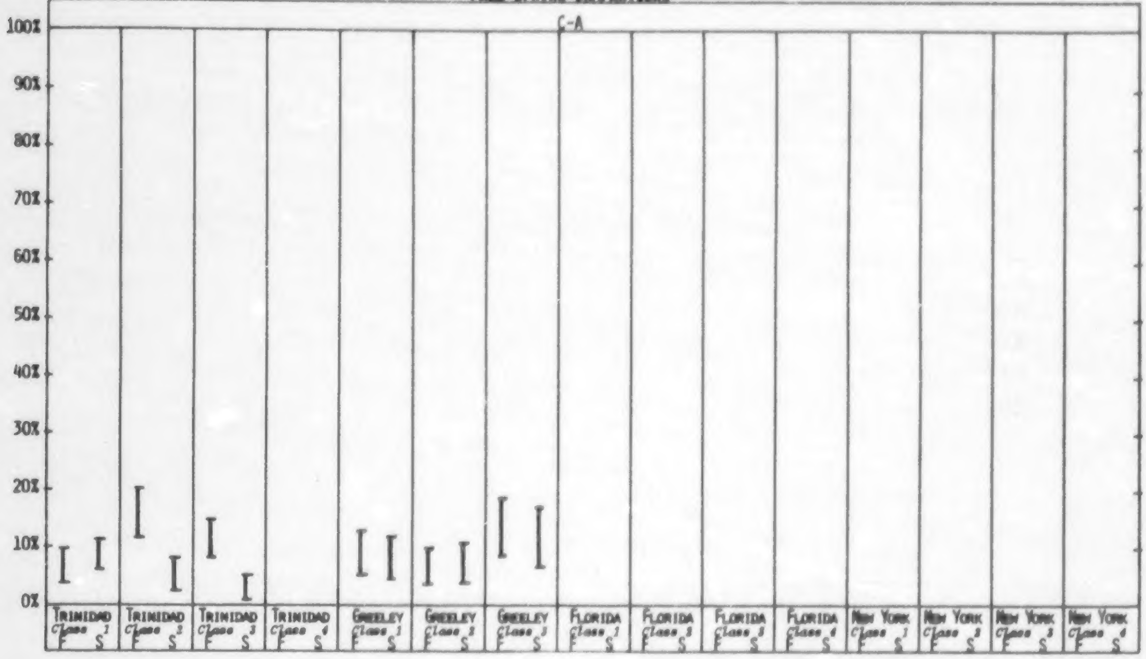


FIGURE 236
GOODMAN'S CONFIDENCE INTERVALS OF INTERACTION TYPES: FIRST GRADE CLASSES
FALL-SPRING COMPARISONS

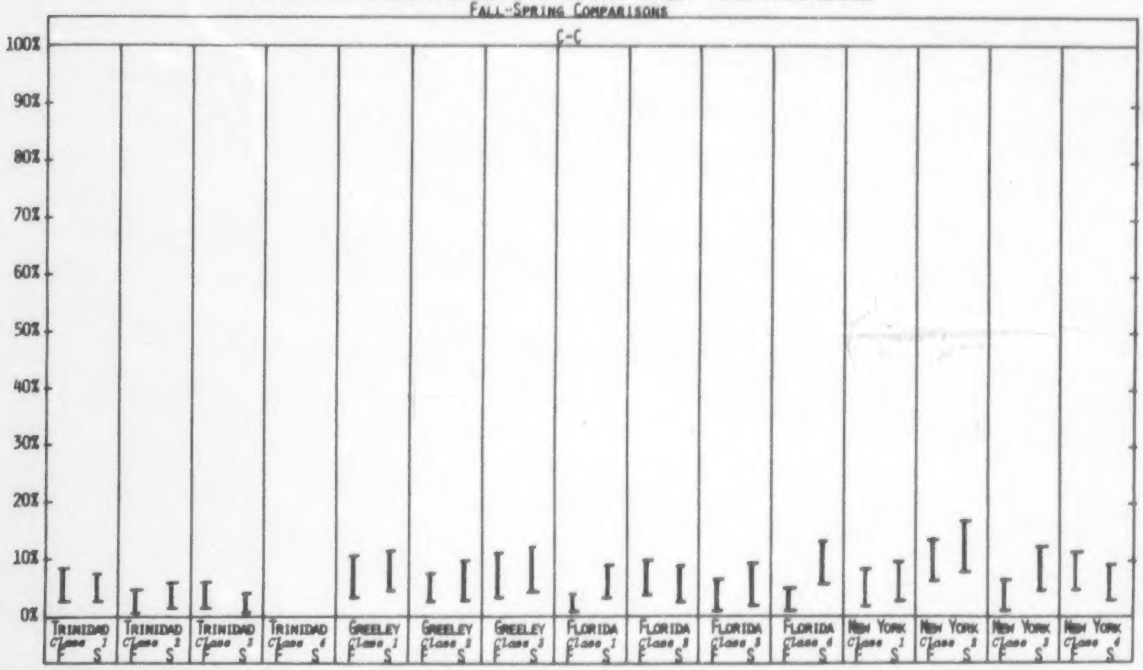


Figure 237
Goodman's Confidence Intervals of Interaction Types: First Grade Classes
Fall-Spring Comparisons

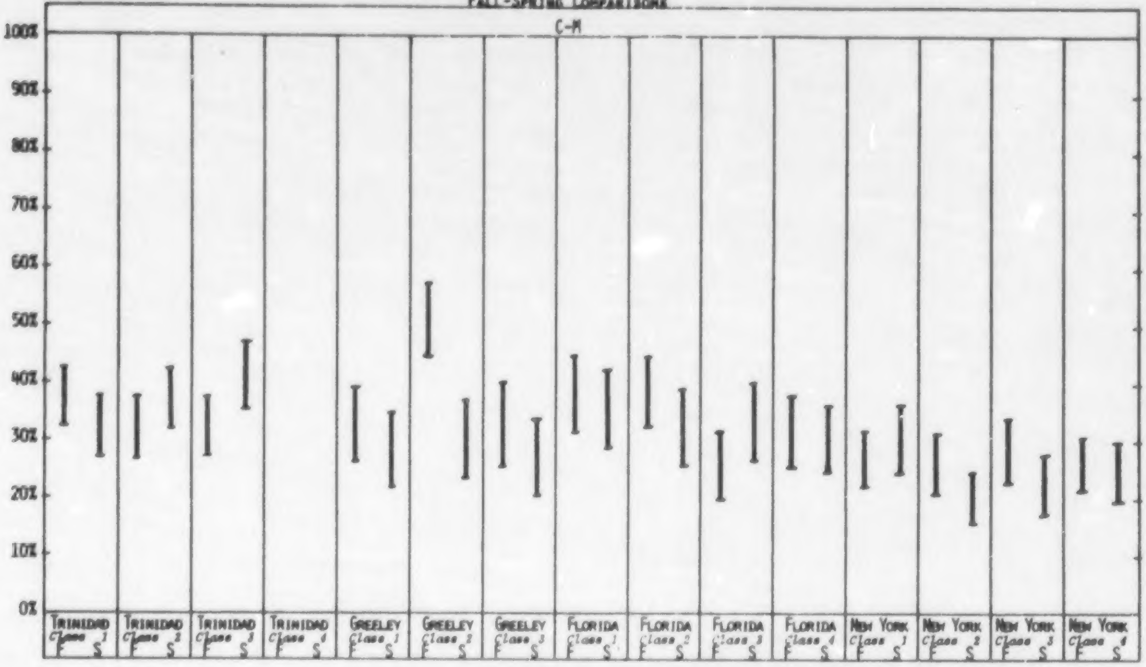


Figure 238
Goodman's Confidence Intervals of Interaction Types: First Grade Classes
Fall-Spring Comparisons

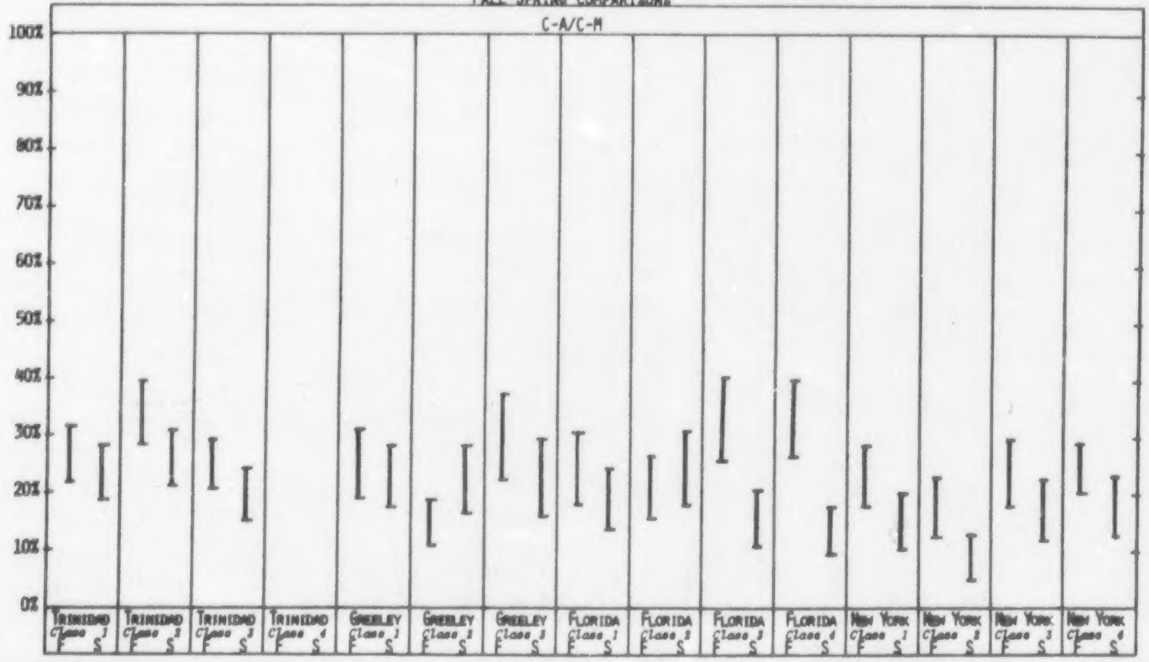


Figure 239
Goodman's Confidence Intervals of Interaction Types: First Grade Classes
Fall-Spring Comparisons

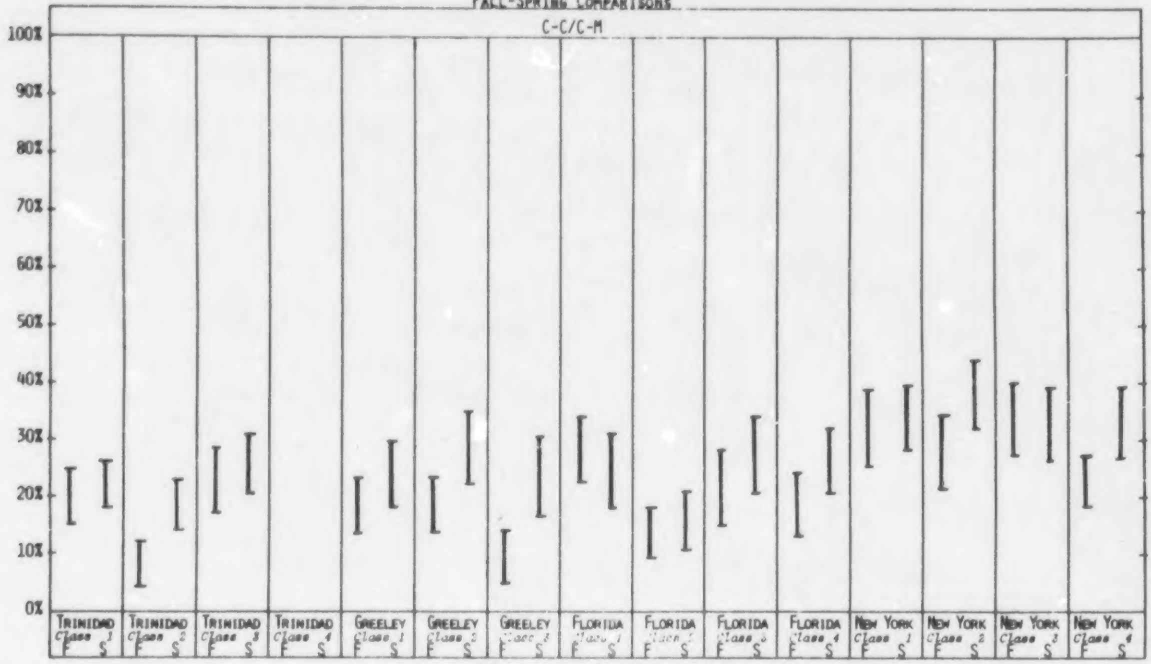
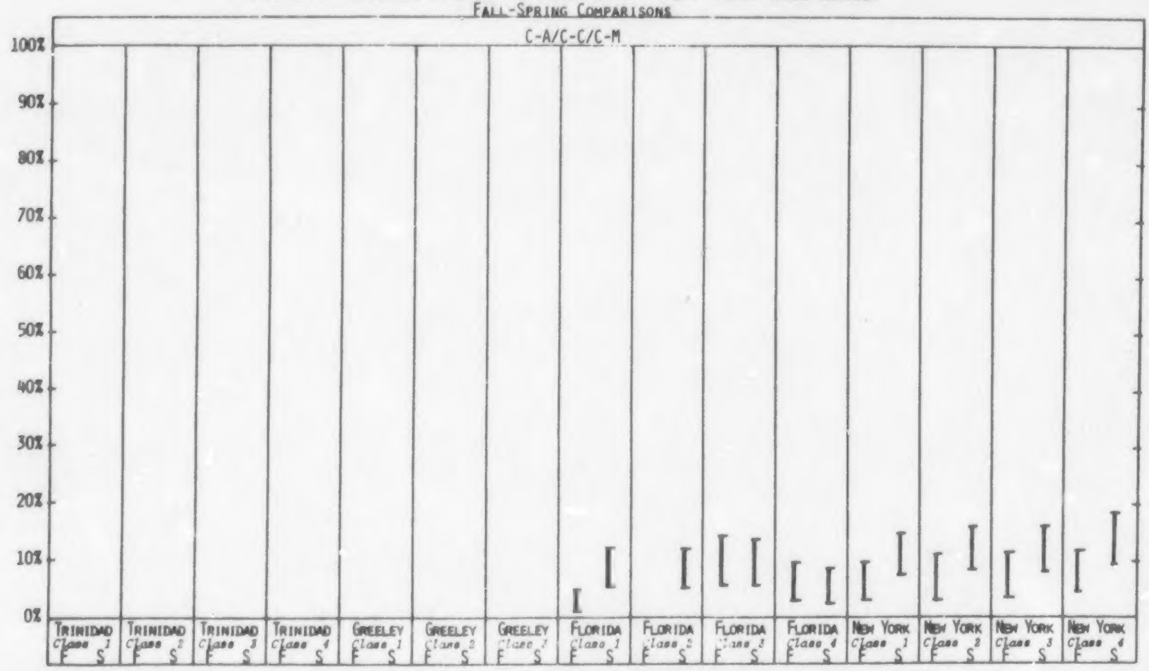


Figure 240
Goodman's Confidence Intervals of Interaction Types: First Grade Classes
Fall-Spring Comparisons



Fall-Spring Comparisons of Interaction Types for Third Grade Classes

Greeley and Florida showed little or no change in interaction types across the observation periods (see Figures 241-246). Greeley third grade classes showed no change in their interactions with adults, children and materials and only class 1 in Florida changed. Child-adult/child-material interactions occurred less often in this class in the spring than in the fall.

Interaction type varied in two classes in New York. Child-child interactions occurred more often in classes 2 and 3 in the spring. Class 2 also had more child-adult/child-child/child-material interactions and less frequent child-material interactions in the spring. Two of the Trinidad classes showed change in this variable. Child-adult interactions occurred less often in both classes 2 and 3 during the second observation period.

Figure 241
Goodman's Confidence Intervals of Interaction Types: Third Grade Classes
Fall-Spring Comparisons

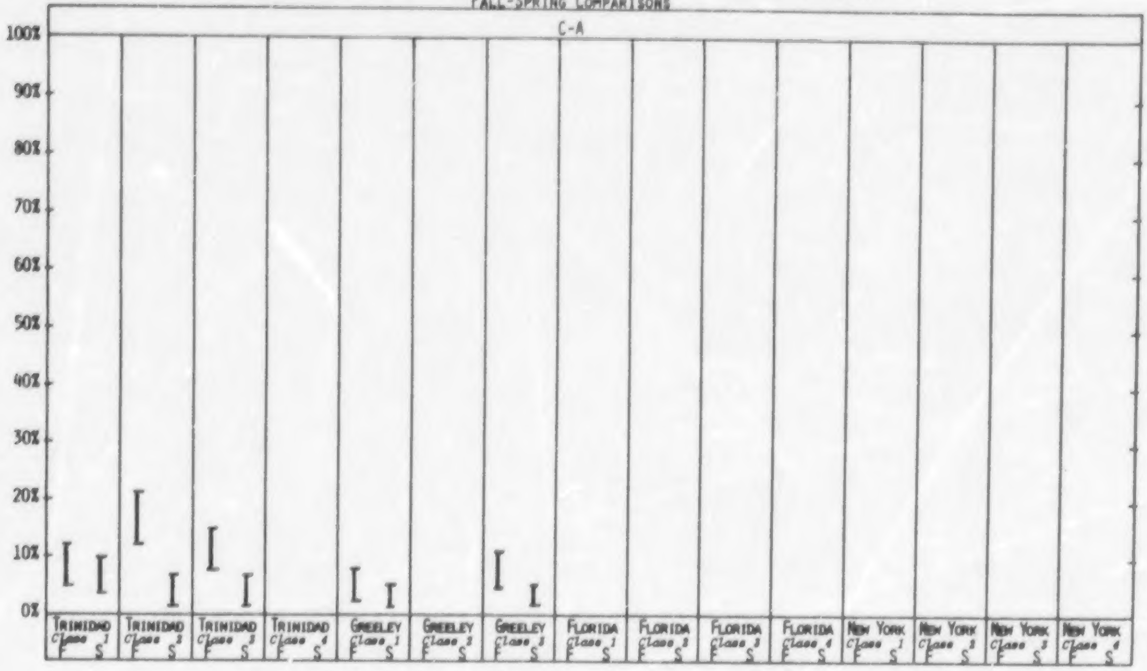


Figure 242
Goodman's Confidence Intervals of Interaction Types: Third Grade Classes
Fall-Spring Comparisons

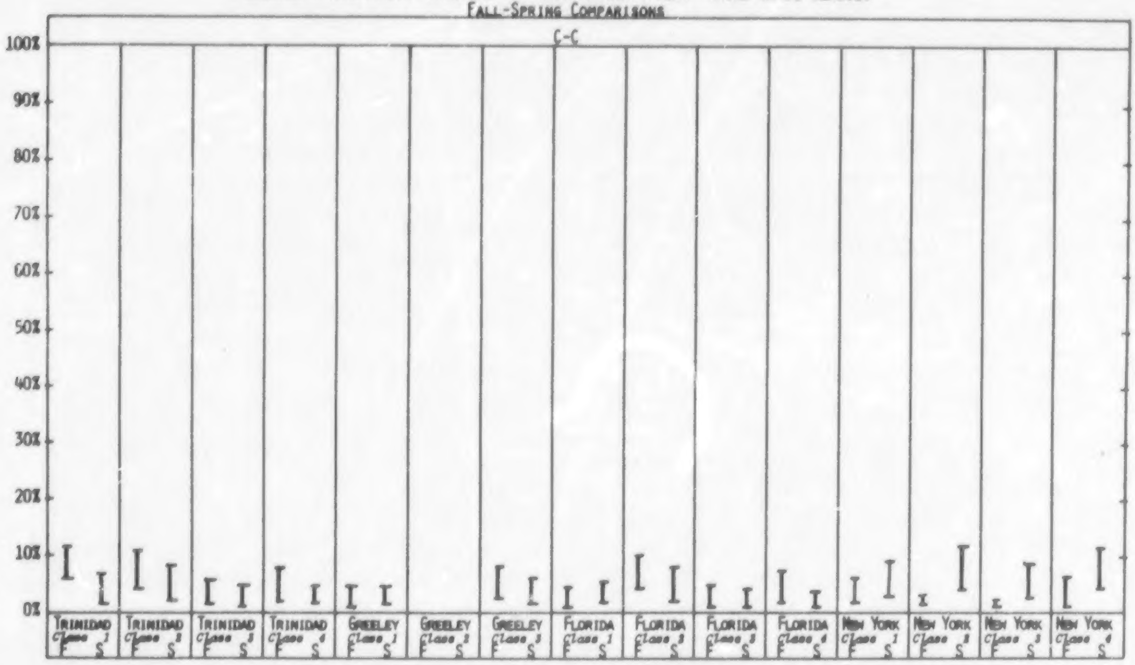


Figure 243
Goodman's Confidence Intervals of Interaction Types: Third Grade Classes
Fall-Spring Comparisons

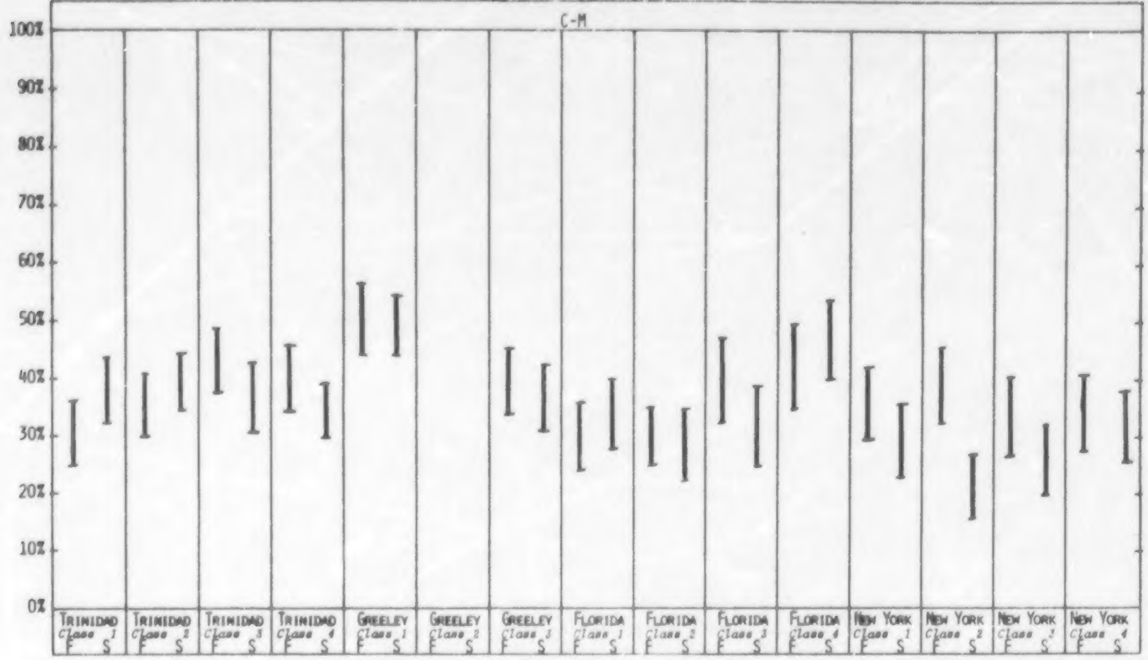


Figure 244
Goodman's Confidence Intervals of Interaction Types: Third Grade Classes
Fall-Spring Comparisons

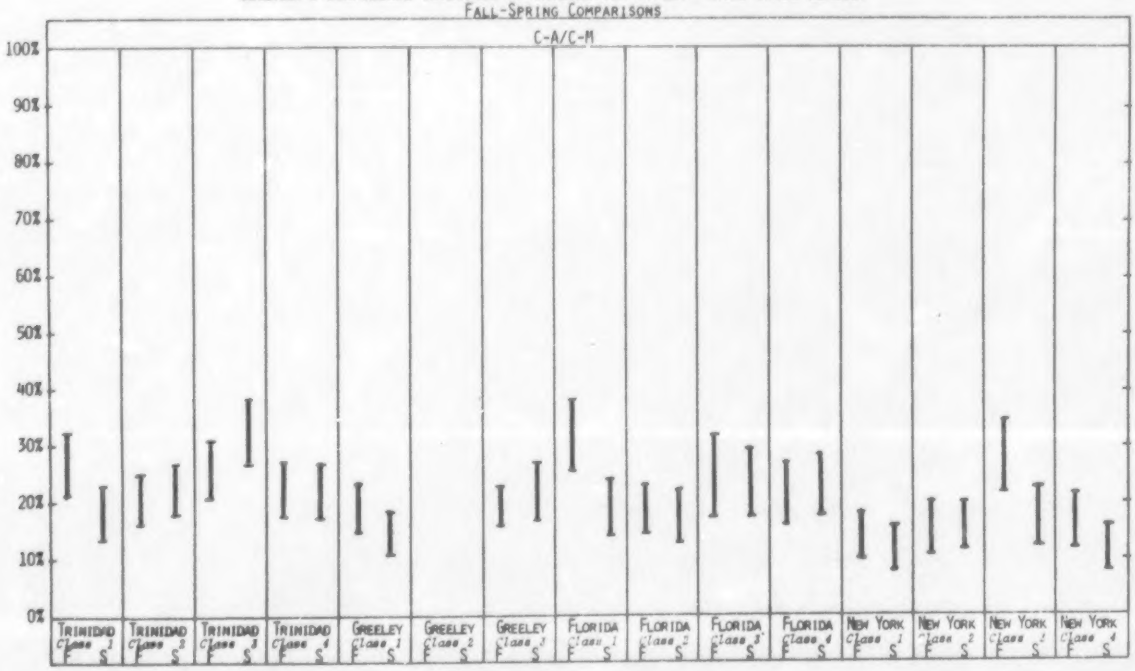


Figure 245
Goodman's Confidence Intervals of Interaction Types: Third Grade Classes
Fall-Spring Comparisons

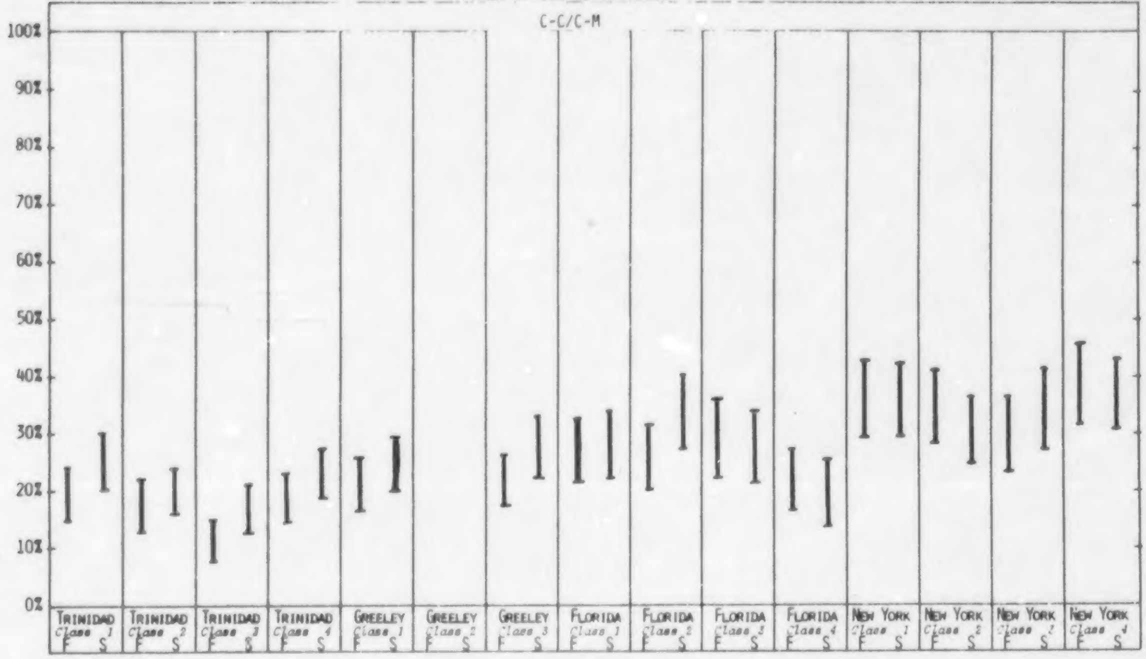
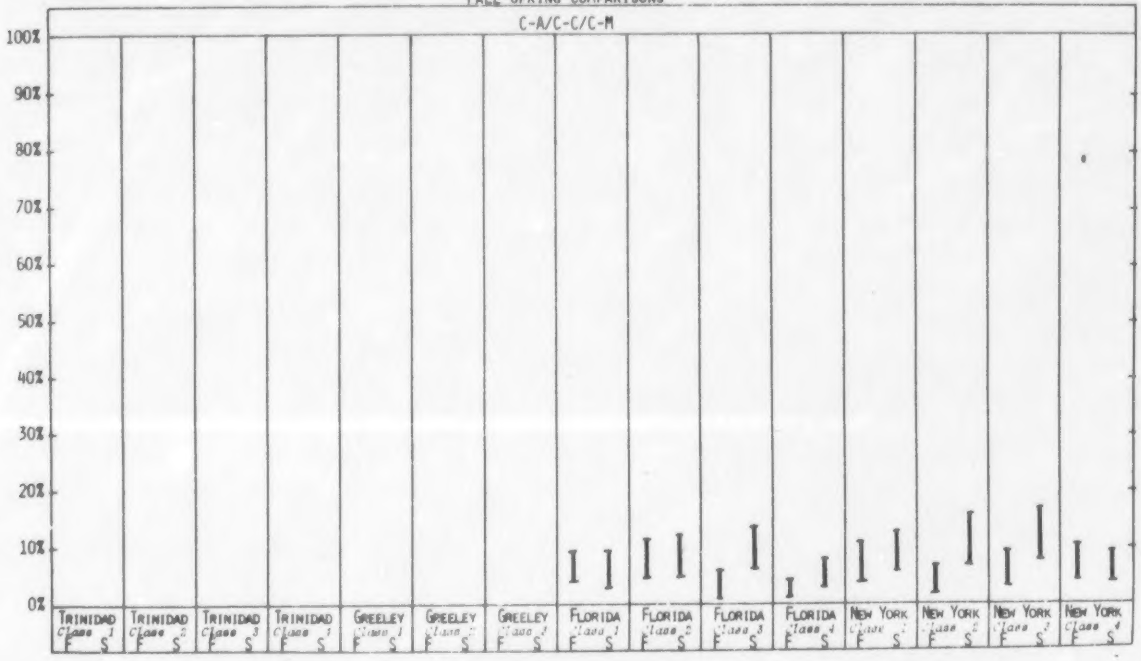


Figure 246
Goodman's Confidence Intervals of Interaction Types: Third Grade Classes
Fall-Spring Comparisons



Analysis of TDC and Field Class Comparisons

Spring Comparisons of Category 2 Items for the TDC and First Grade Classes

First grade students in five of the six classes in Trinidad and Greeley initiated interactions with adults more often than first graders in the TDC (see Figures 247-249). They were also more often attending to adults who were not paying attention to them than TDC first grade students. TDC-New York comparisons and TDC-Florida comparisons could not be made because of low reliability items in these centers.

Figure 247

Goodman's Confidence Intervals of Category 2: TDC and First Grade Classes

Spring, 1973

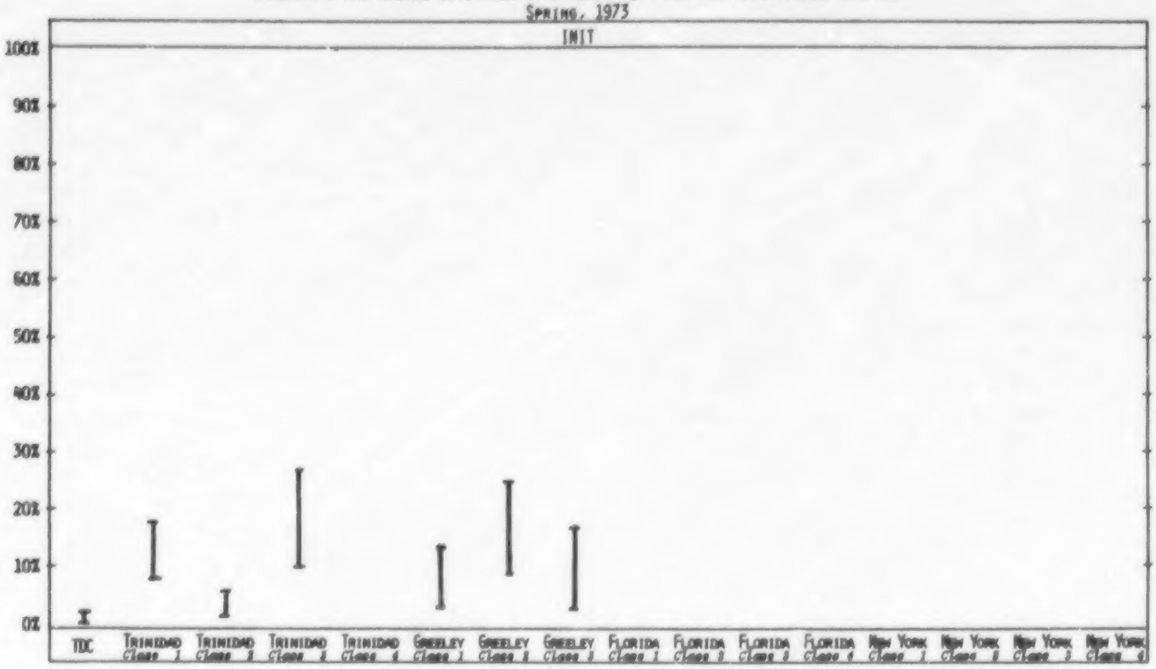


Figure 248

Goodman's Confidence Intervals of Category 2: TDC and First Grade Classes

Spring, 1973

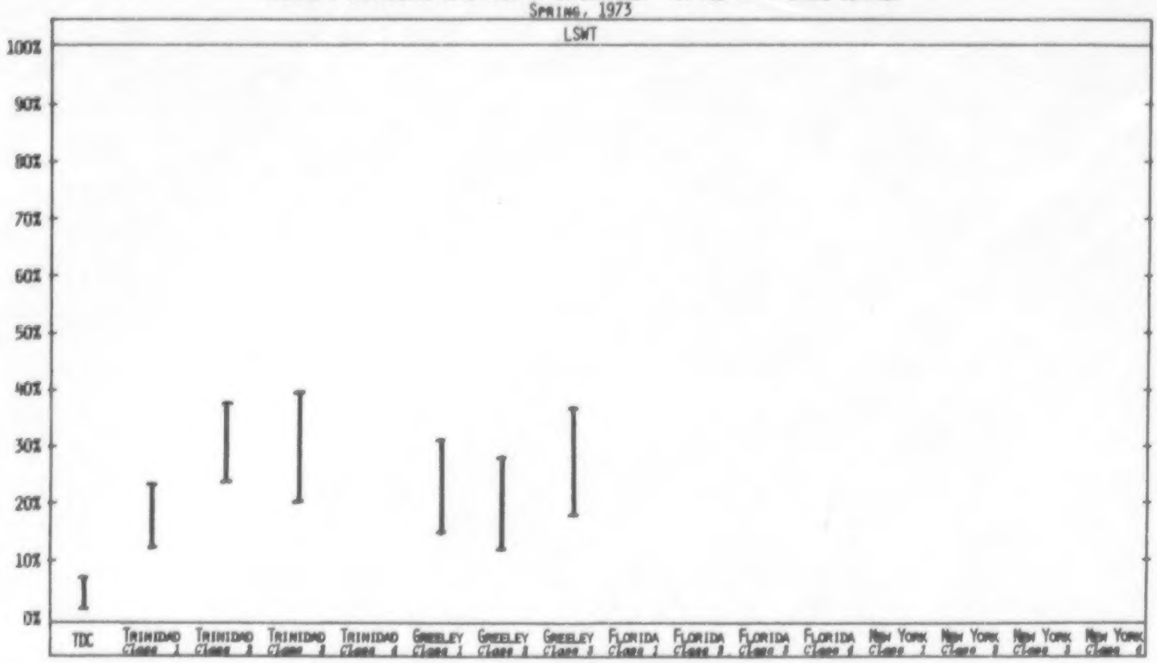
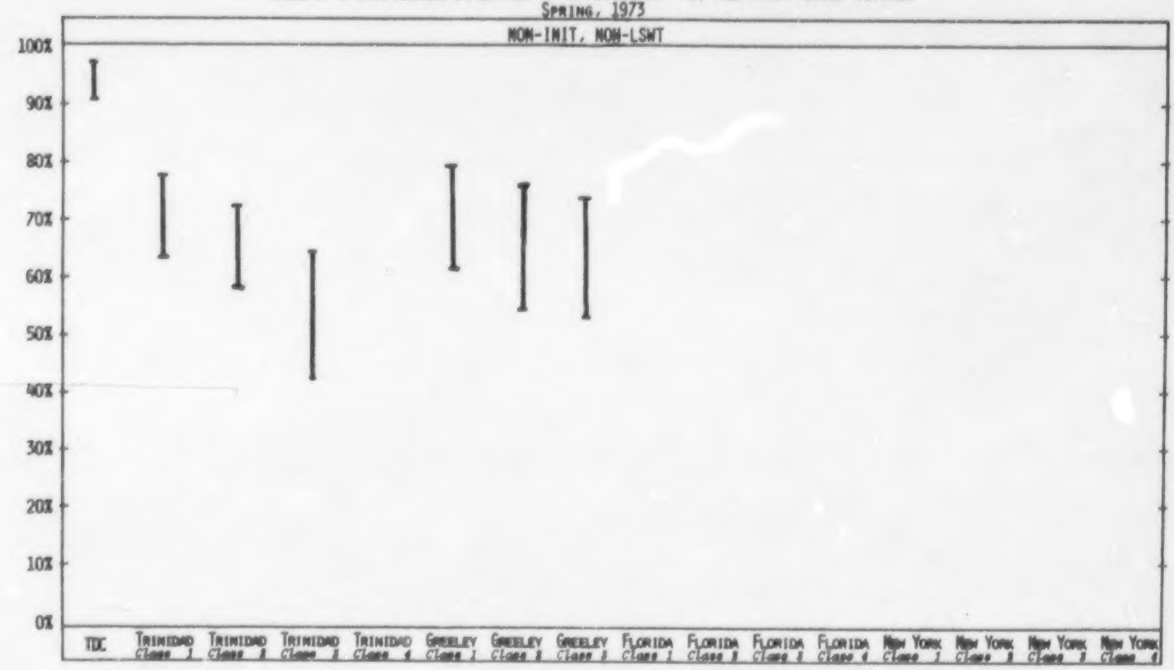


FIGURE 249

GOODMAN'S CONFIDENCE INTERVALS OF CATEGORY 2: TDC AND FIRST GRADE CLASSES
SPRING, 1973



Spring Comparisons of Category 2 Items for the TDC and Third Grade Classes

Three of the six third grade classes in Trinidad and Greeley showed higher frequencies of child-initiated interactions with adults when compared to the third grade students at the TDC (see Figures 250-252). The TDC third graders, like the TDC first graders, were less often watching adults who were attending to other students or other activities than students in Greeley or Trinidad. Comparisons with New York and Florida could not be made.

FIGURE 250
GOODMAN'S CONFIDENCE INTERVALS OF CATEGORY 2: TDC AND THIRD GRADE CLASSES
SPRING, 1973

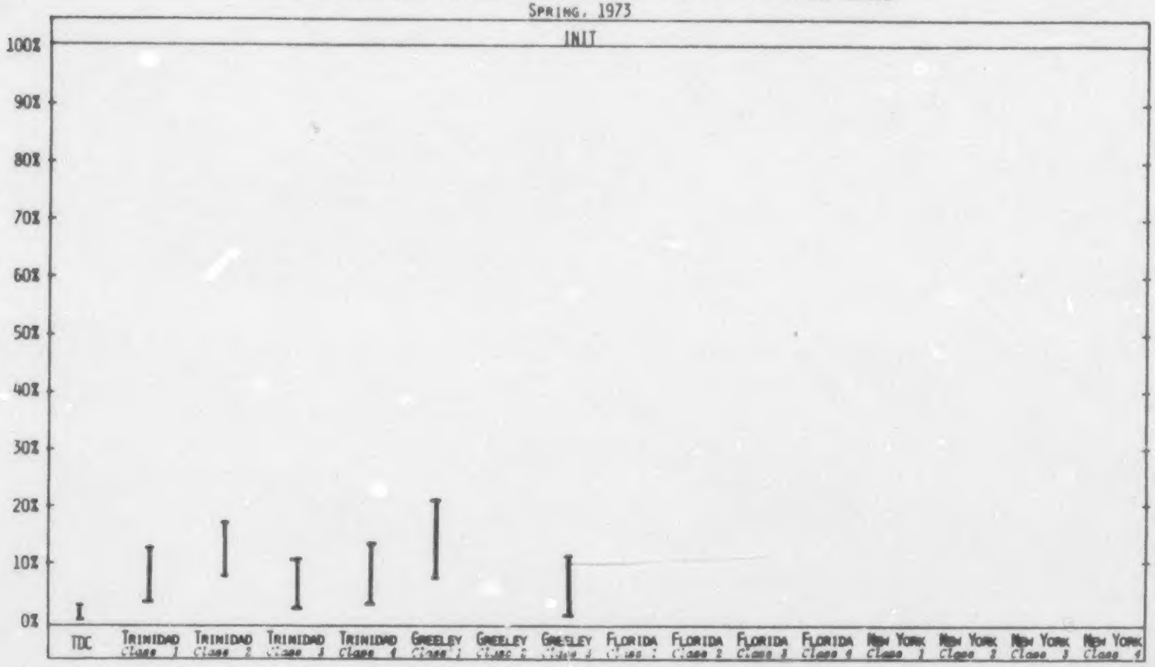


FIGURE 251
GOODMAN'S CONFIDENCE INTERVALS OF CATEGORY 2: TDC AND THIRD GRADE CLASSES
SPRING, 1973

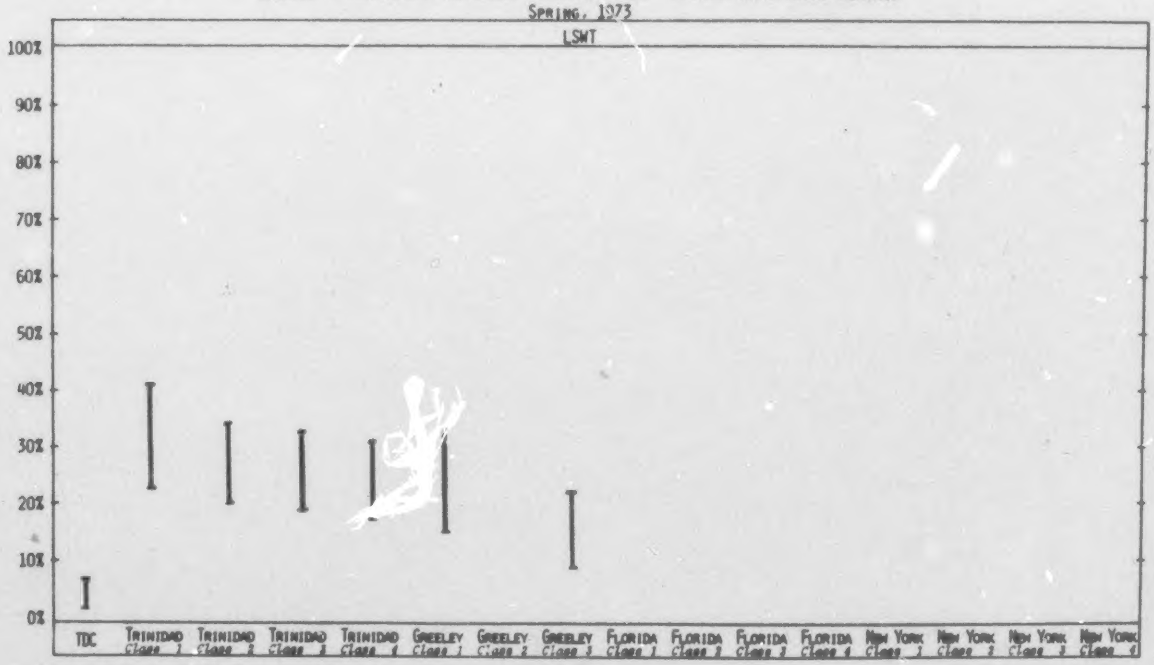
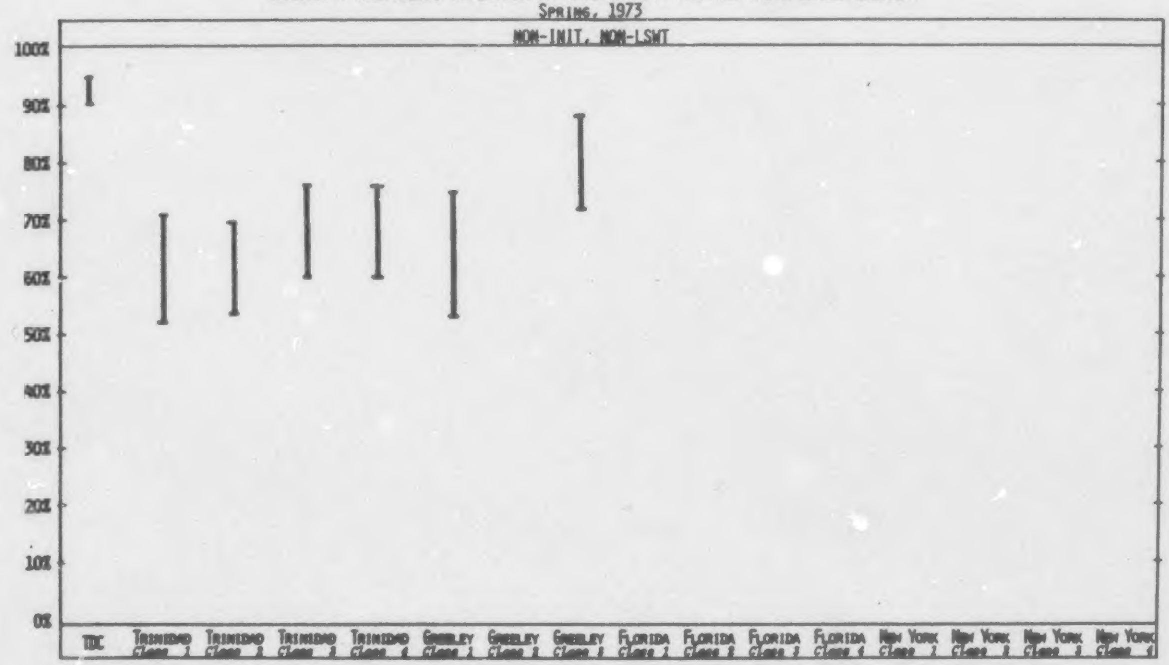


FIGURE 252

GOODMAN'S CONFIDENCE INTERVALS OF CATEGORY 2: TDC AND THIRD GRADE CLASSES

SPRING, 1973



Spring Comparisons of Category 4 Items for the TDC and First Grade Classes

The teaching behaviors of adults in the first grade classes did not differ from those teaching behaviors observed at the TDC (see Figures 253-257).

Figure 253
Goodman's Confidence Intervals of Category 4: TDC and First Grade Classes
Spring, 1973

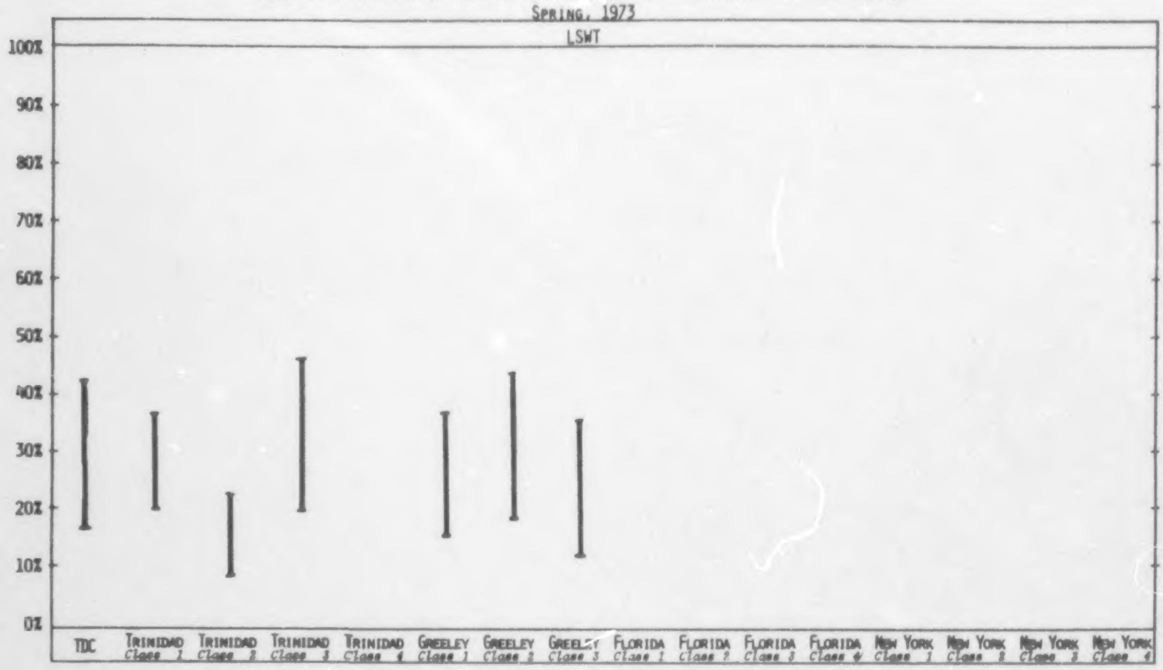


Figure 254
Goodman's Confidence Intervals of Category 4: TDC and First Grade Classes
Spring, 1973

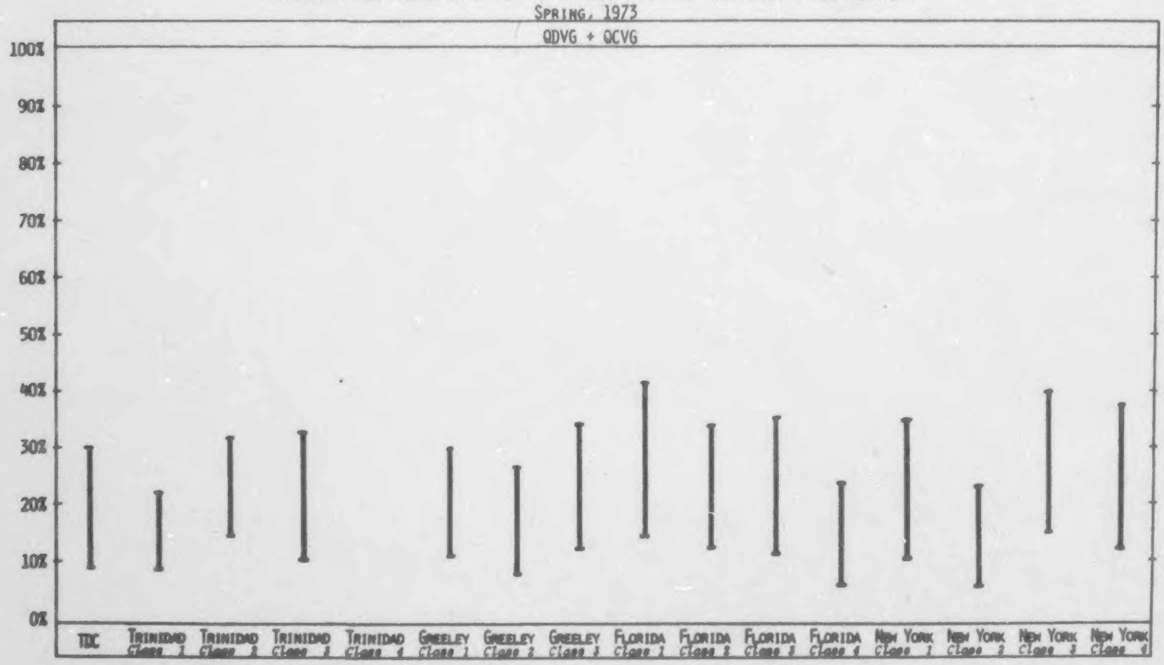


Figure 255
Goodman's Confidence Intervals of Category 4: TDC and First Grade Classes
Spring, 1973

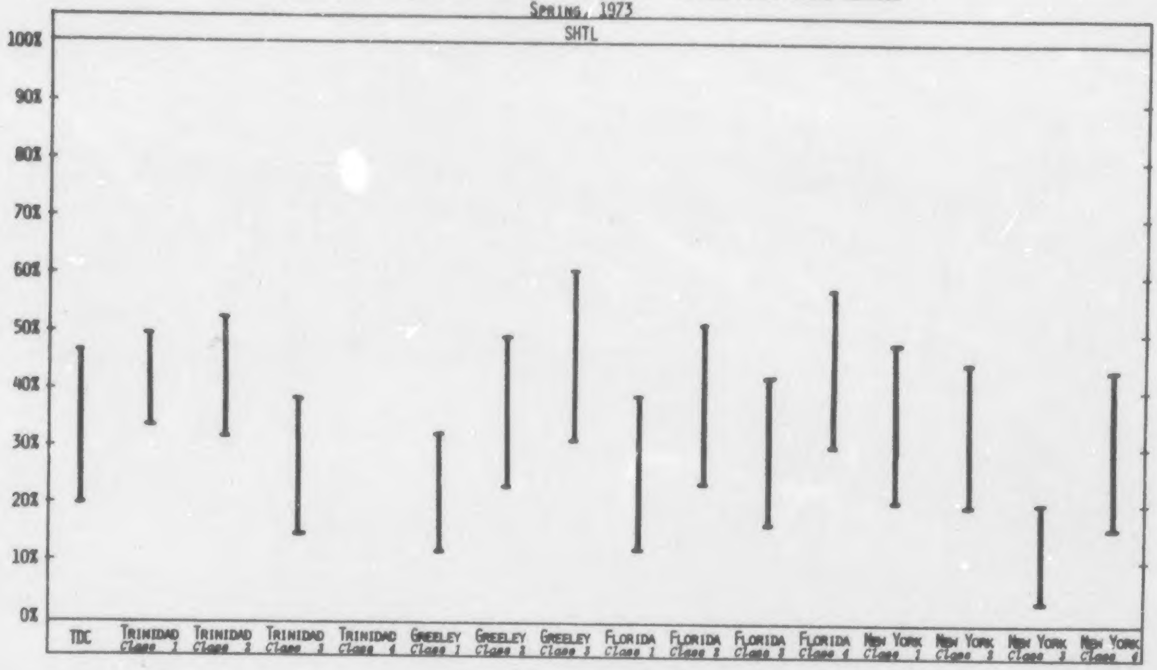


Figure 256
Goodman's Confidence Intervals of Category 4: TDC and First Grade Classes
Spring, 1973

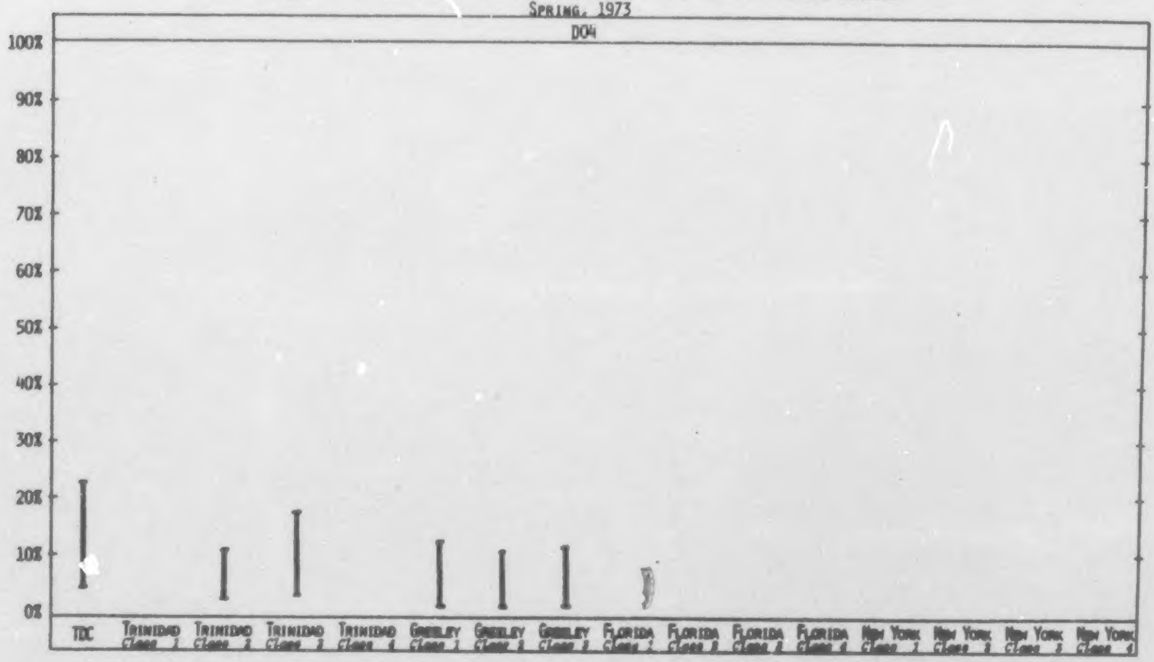
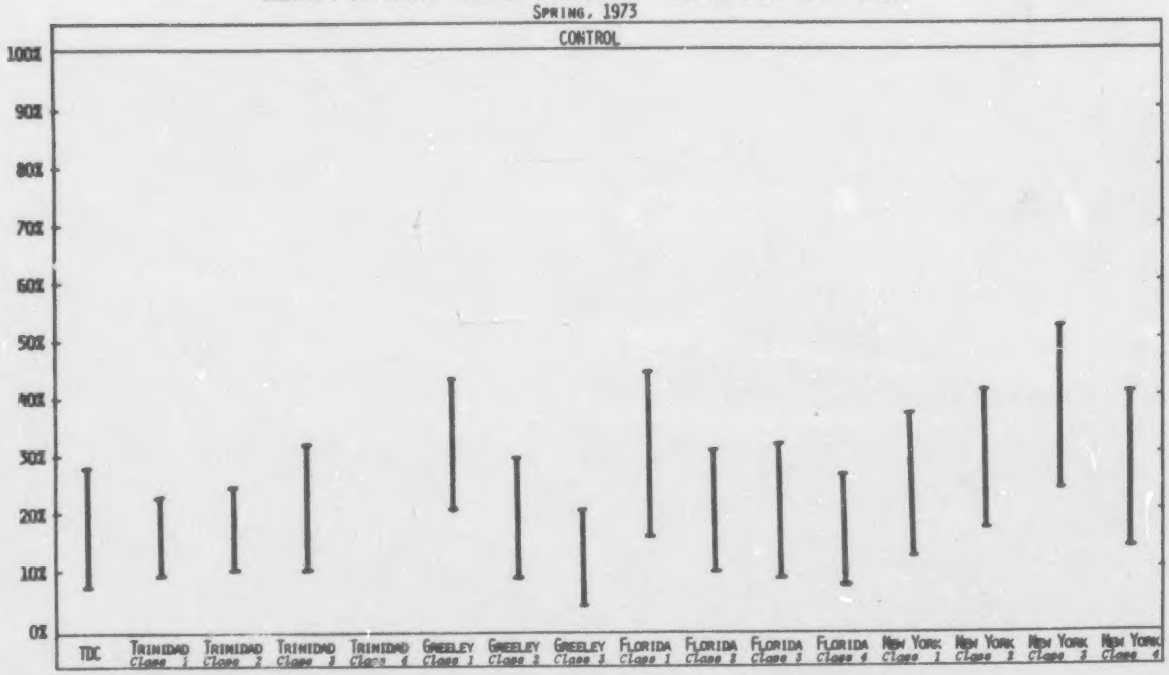


FIGURE 257
GOODMAN'S CONFIDENCE INTERVALS OF CATEGORY 4: TDC AND FIRST GRADE CLASSES
SPRING, 1973



Spring Comparisons of Category 4 Items for the TDC and Third Grade Classes

The adult's teaching behavior differentiated only one third grade class from the TDC (see Figures 258-262). When children were interacting with adults, the adults in class 1 in Greeley were more frequently assisting the children than adults in the TDC. Adult behaviors such as getting paper for a child or writing a word for a child were coded as "assisting" behaviors.

Figure 258
Goodman's Confidence Intervals of Category 4: TDC and Third Grade Classes
Spring, 1973

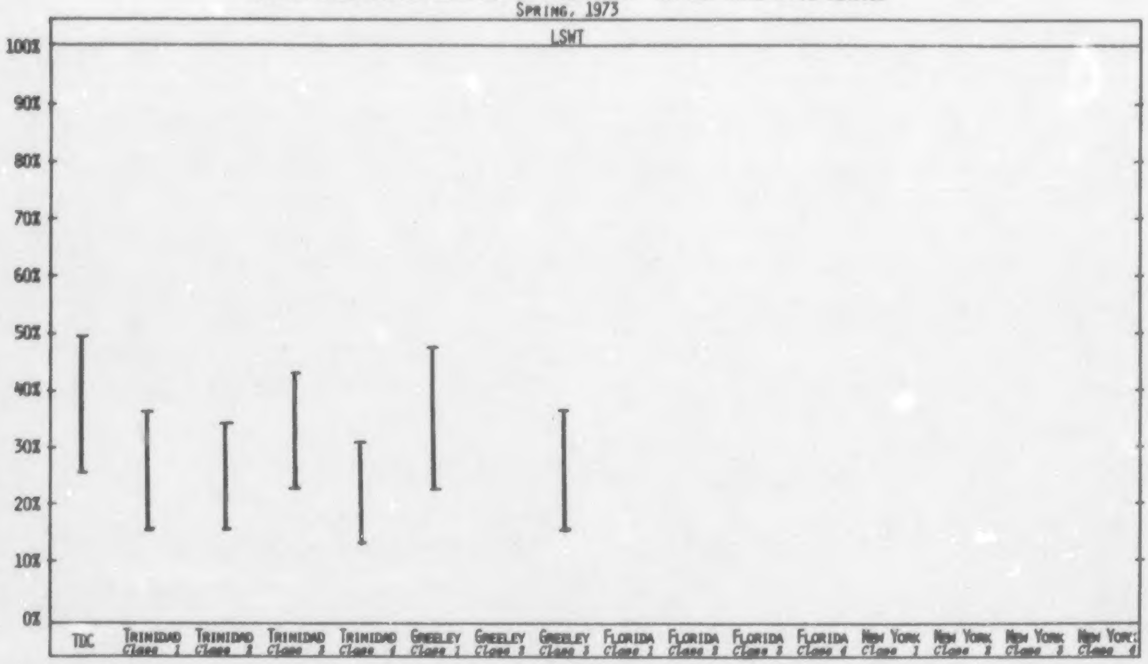


Figure 259
Goodman's Confidence Intervals of Category 4: TDC and Third Grade Classes
Spring, 1973

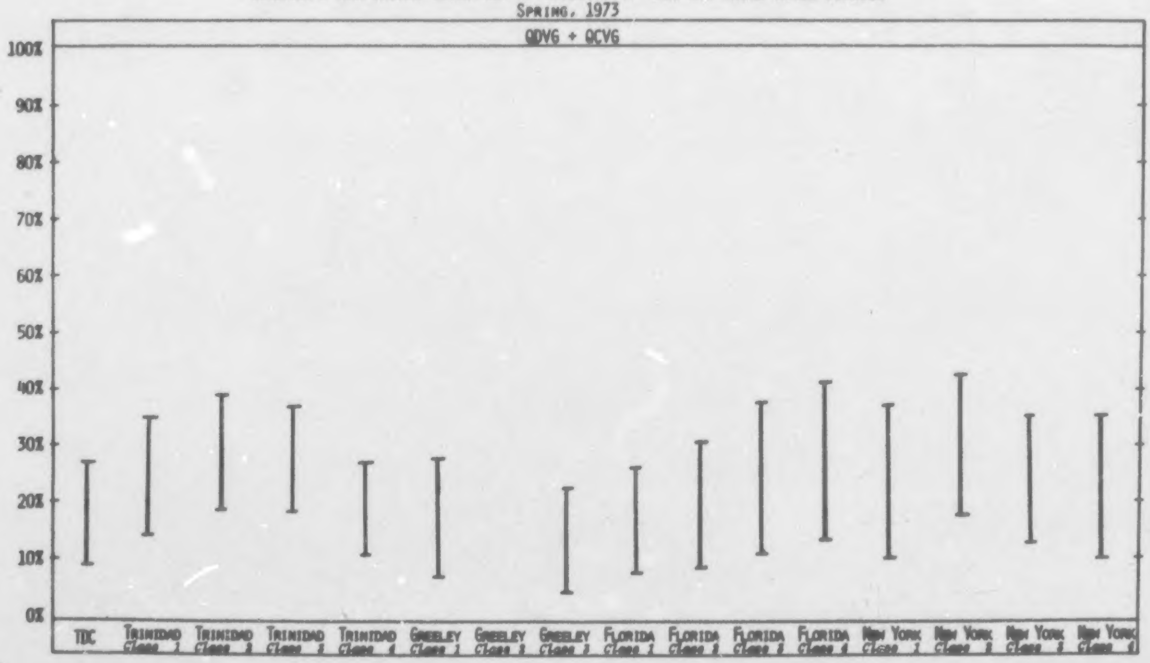


Figure 260
Goodman's Confidence Intervals of Category 4: TDC and Third Grade Classes
Spring, 1973

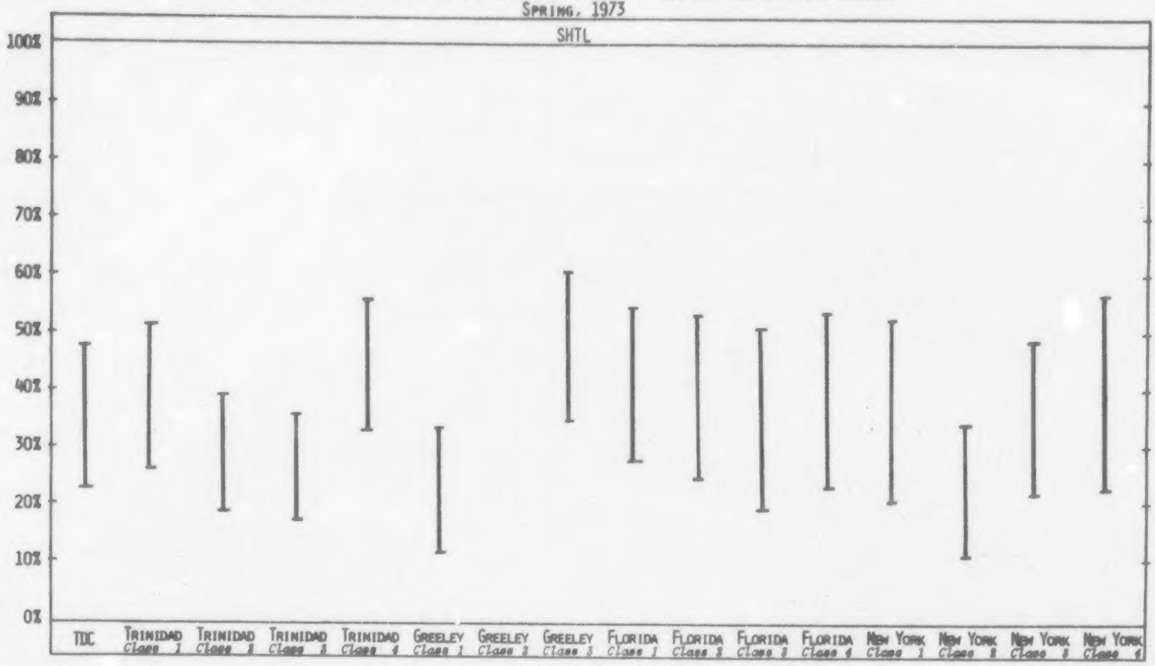


Figure 261
Goodman's Confidence Intervals of Category 4: TDC and Third Grade Classes
Spring, 1973

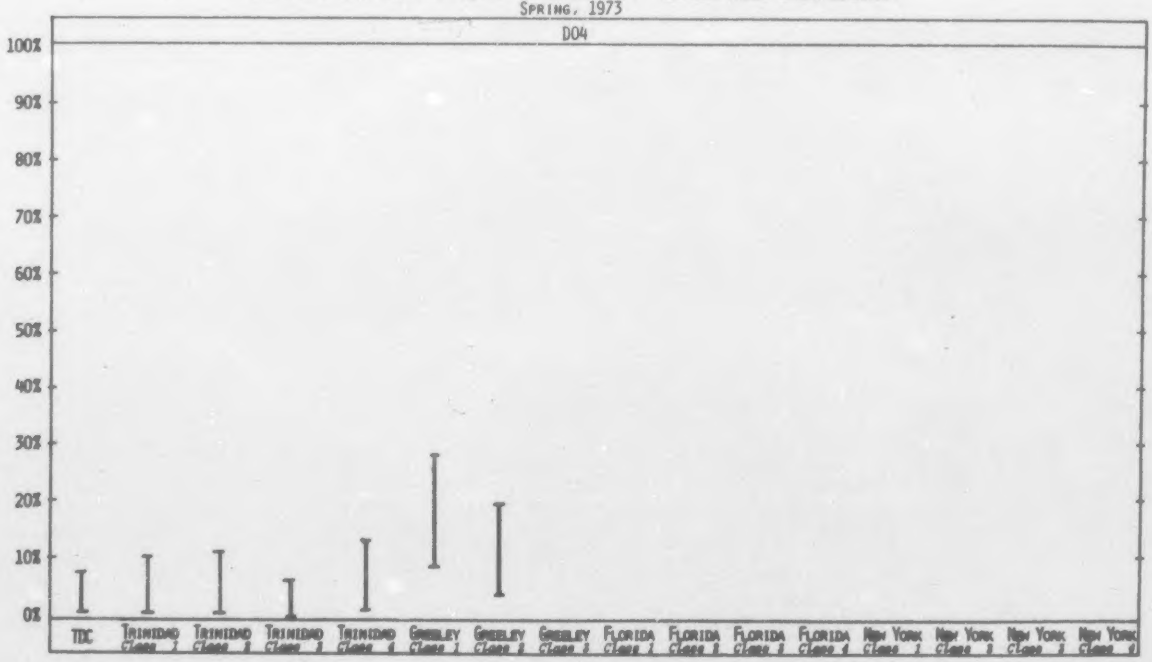
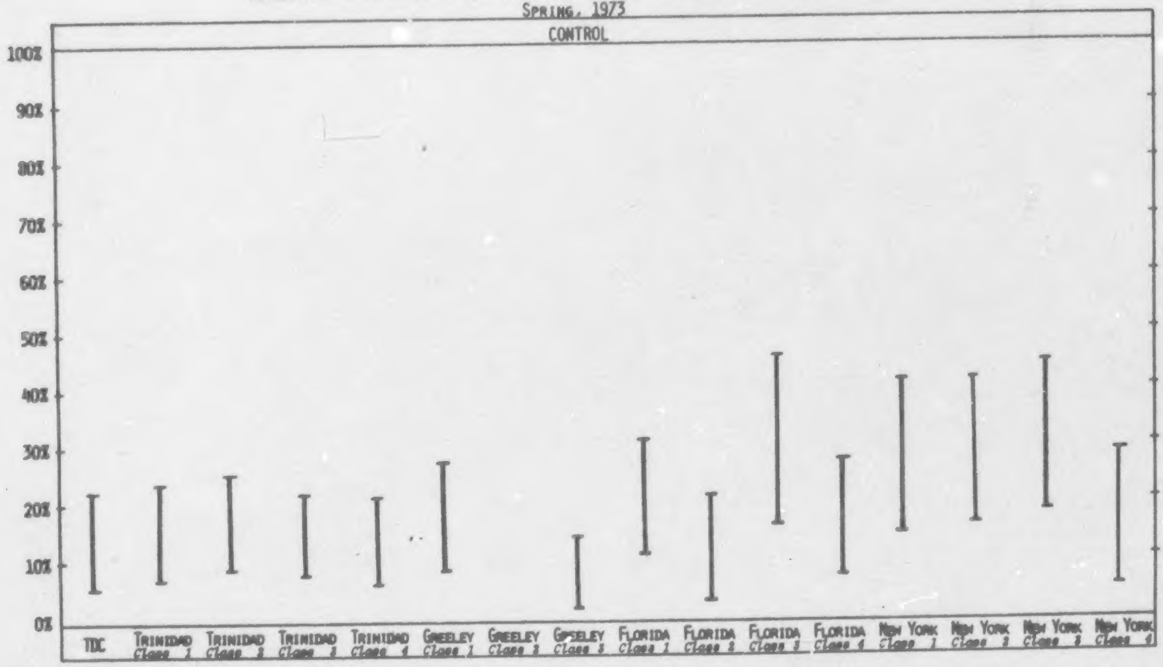


Figure 262
Goodman's Confidence Intervals of Category 4: TDC and Third Grade Classes
Spring, 1973



Spring Comparisons of Category 5 Items for the TDC and First Grade Classes

Adults in the first grade classes interacted with students individually and as members of a group the same proportion of the time the TDC adults did (see Figures 263-264).

FIGURE 263

GOODMAN'S CONFIDENCE INTERVALS OF CATEGORY 5: TDC AND FIRST GRADE CLASSES

SPRING, 1973

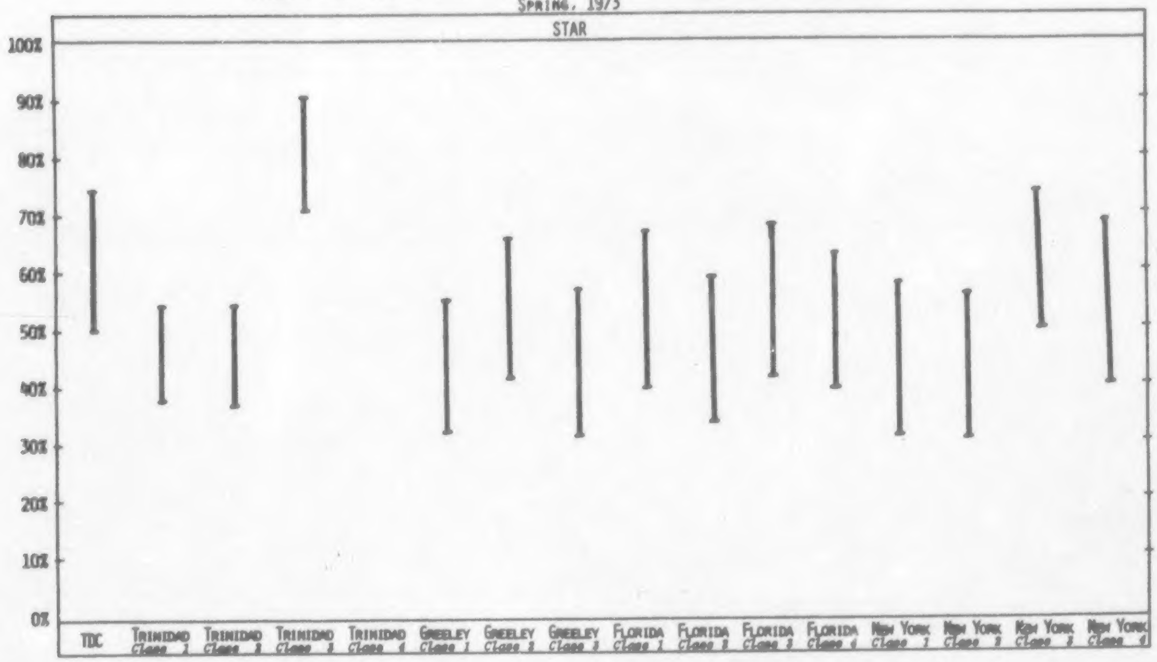
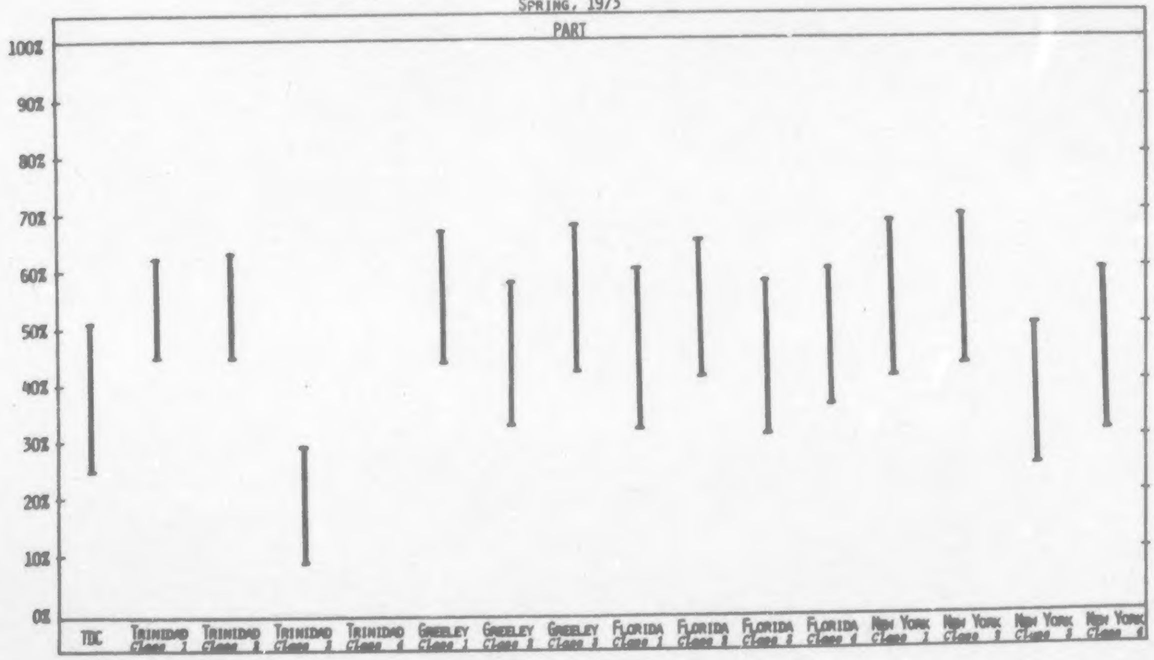


FIGURE 264

GOODMAN'S CONFIDENCE INTERVALS OF CATEGORY 5: TDC AND FIRST GRADE CLASSES

SPRING, 1973



Spring Comparisons of Category 5 Items for the TDC and Third Grade Classes

The kind of attention children received from adults differentiated only two of the fourteen third grade classes from the TDC (see Figures 265-266). Children in class 3 in New York received less individual attention from adults than third graders in the TDC and children in class 3 in Trinidad received more individual attention than the TDC third graders.

Figure 265
Goodman's Confidence Intervals of Category 5: TDC and Third Grade Classes
Spring, 1973

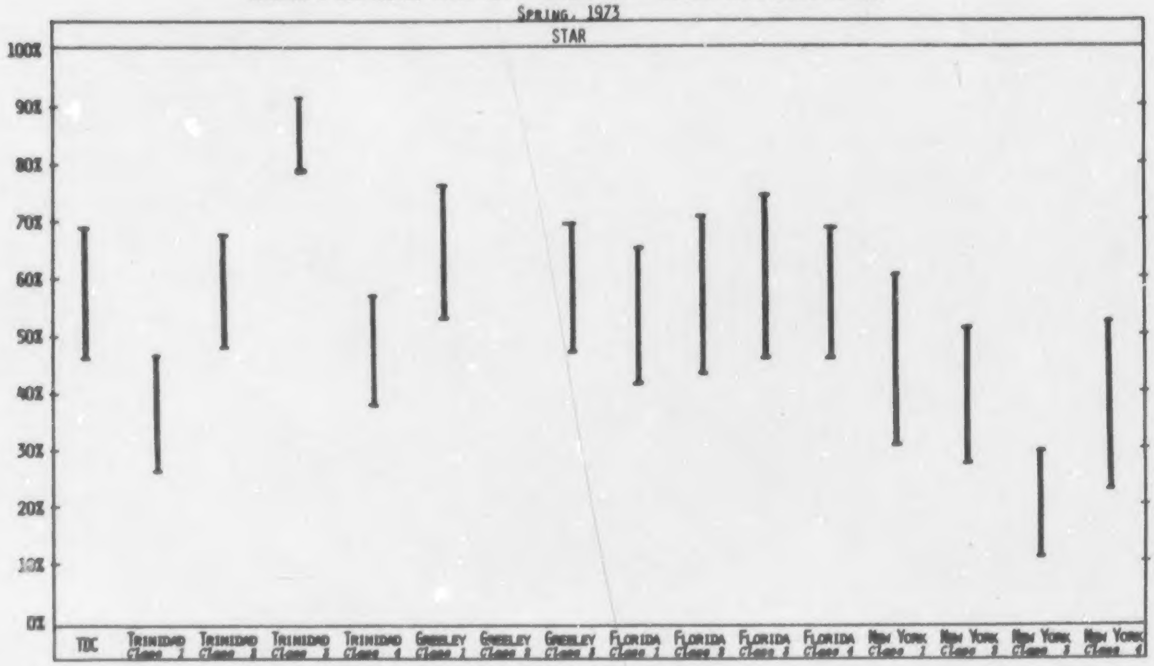
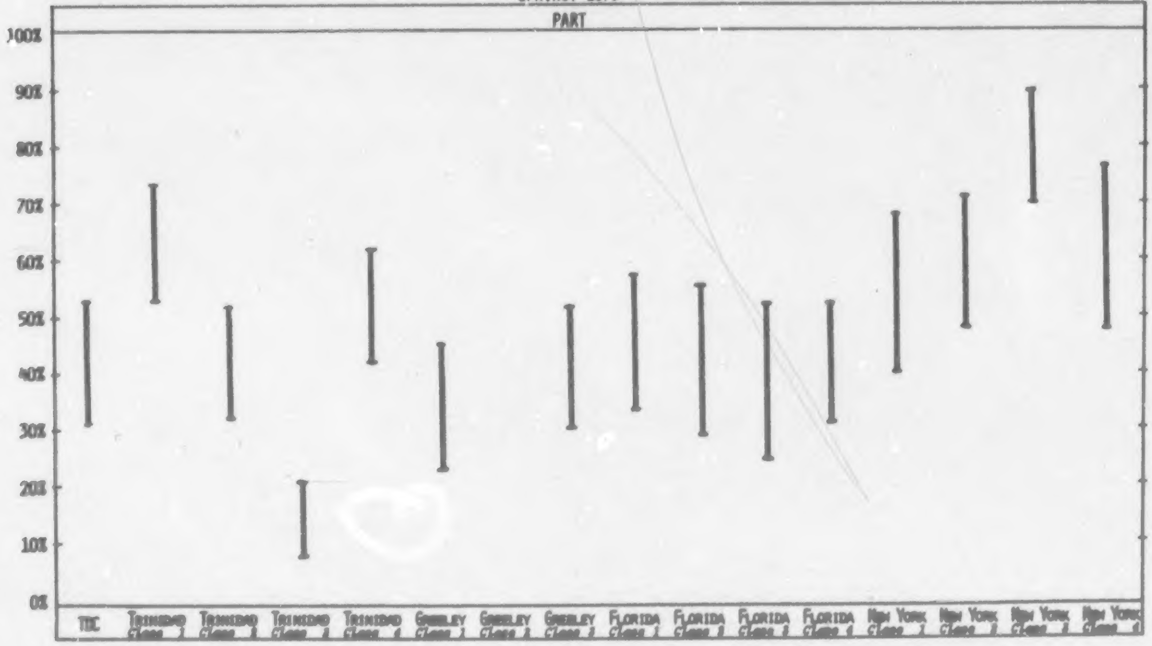


Figure 266
Goodman's Confidence Intervals of Category 5: TDC and Third Grade Classes
Spring, 1973



Spring Comparisons of Category 6 Items for the TDC and First Grade Classes

Six of the fourteen first grade classes differed from the TDC with respect to the kinds of behaviors occurring during child-child interactions (see Figures 267-269). The TDC students appeared to be more task-oriented when working with peers, spending less time passively watching other children than students in five of the first grade classes. TDC first graders used materials more often in their interactions with peers than students in three of the first grade classes and were more involved in child-child interactions in which materials were not used than class 3 children in Trinidad.

FIGURE 267

GOODMAN'S CONFIDENCE INTERVALS OF CATEGORY 6: TDC AND FIRST GRADE CLASSES

SPRING, 1973

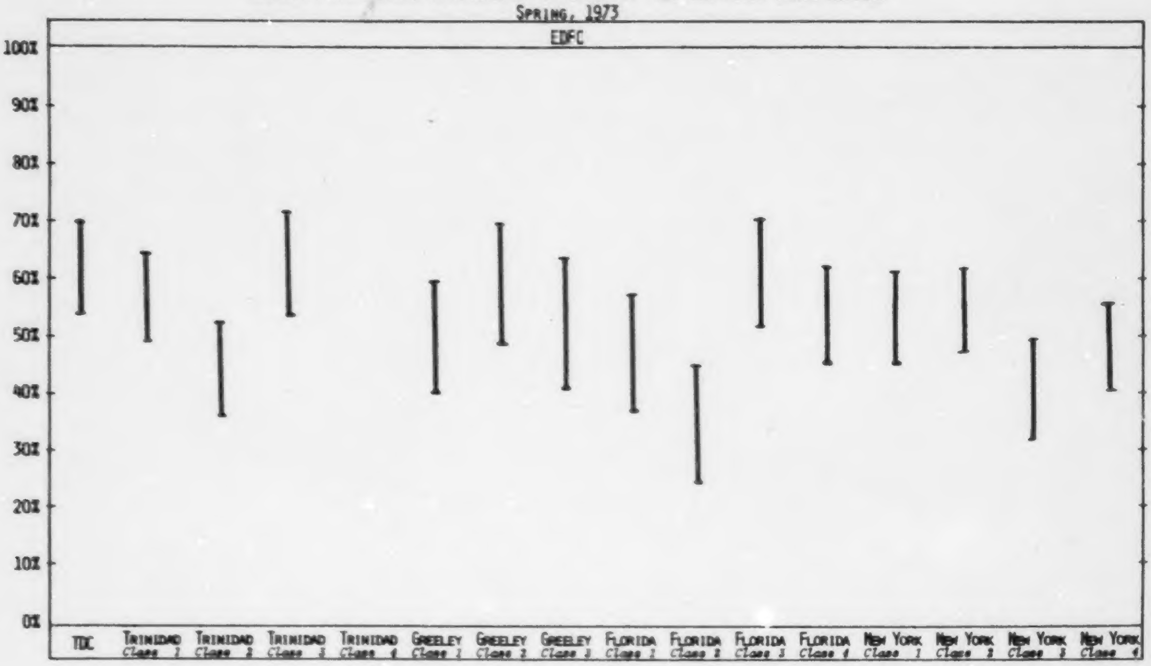


FIGURE 268

GOODMAN'S CONFIDENCE INTERVALS OF CATEGORY 6: TDC AND FIRST GRADE CLASSES

SPRING, 1973

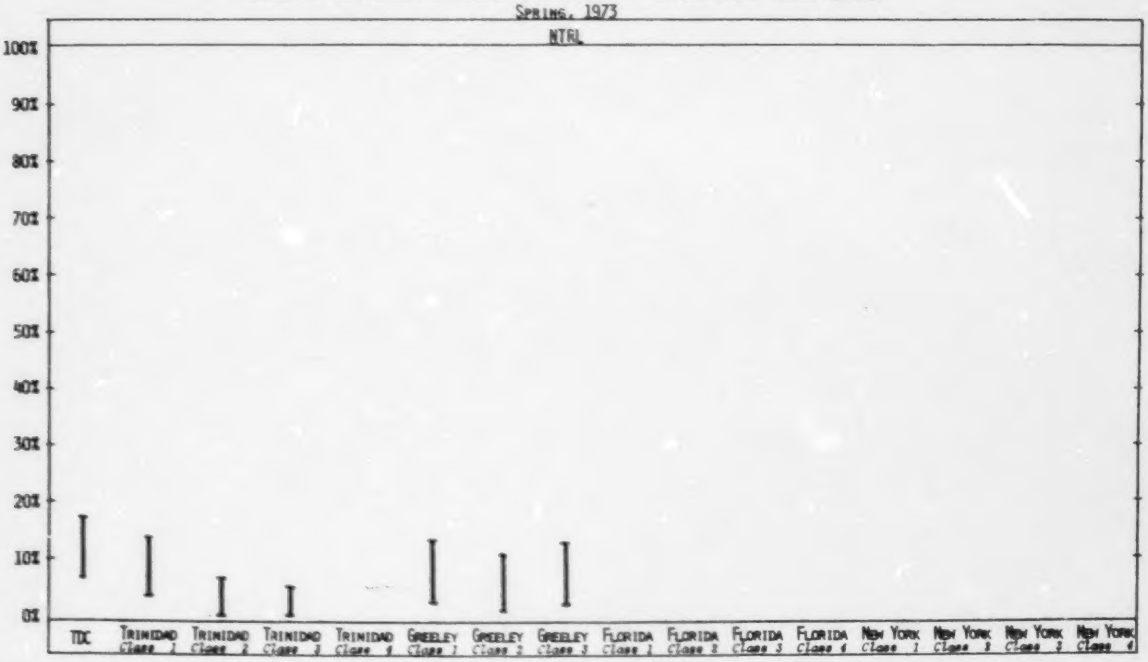
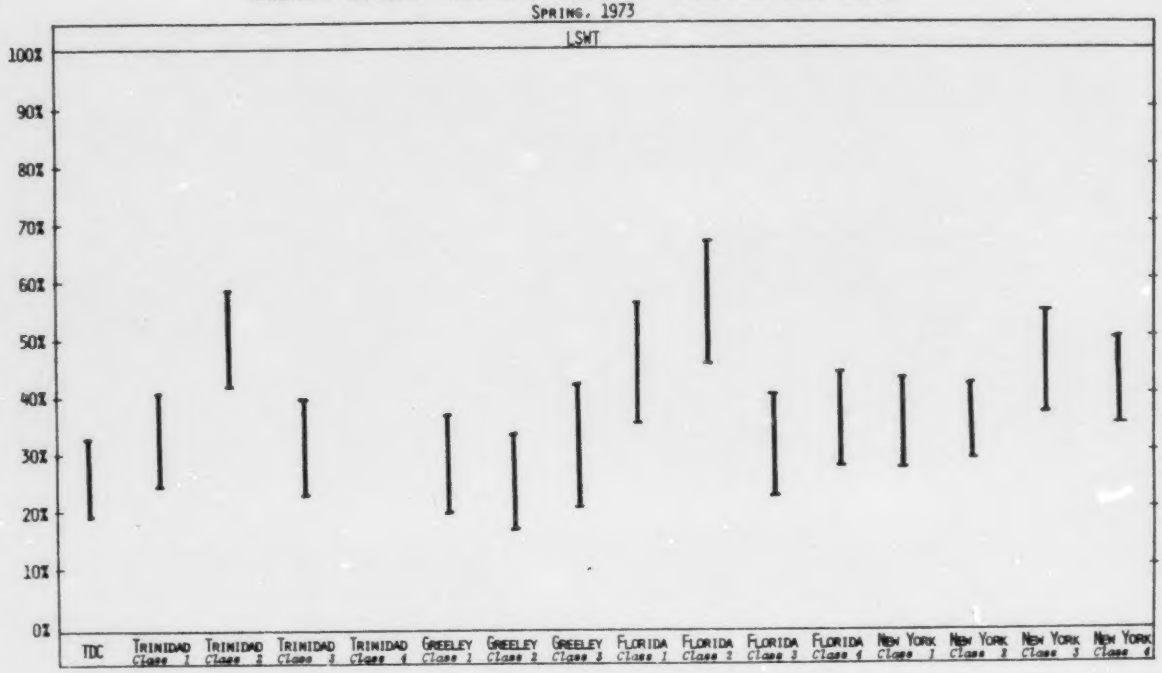


Figure 269
Goodman's Confidence Intervals of Category 6: TDC and First Grade Classes
Spring, 1973



Spring Comparisons of Category 6 Items for the TDC and Third Grade Classes

Five of the fourteen third grade classes differed from the TDC in the kinds of behaviors occurring during child-child interactions (see Figures 270-272). Students in these five classes spent more time passively watching other children and children in three of these classes used materials less often in their interactions with other students than TDC students.

Figure 270
Goodman's Confidence Intervals of Category 6: TDC and Third Grade Classes
Spring, 1973

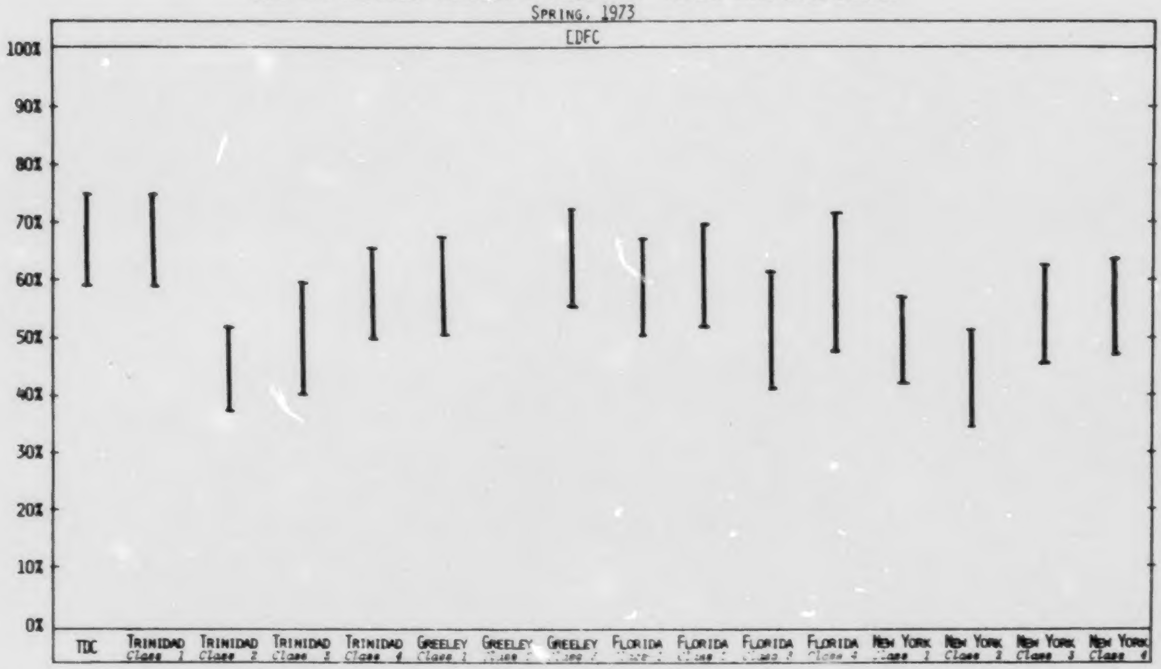


Figure 271
Goodman's Confidence Intervals of Category 6: TDC and Third Grade Classes
Spring, 1973

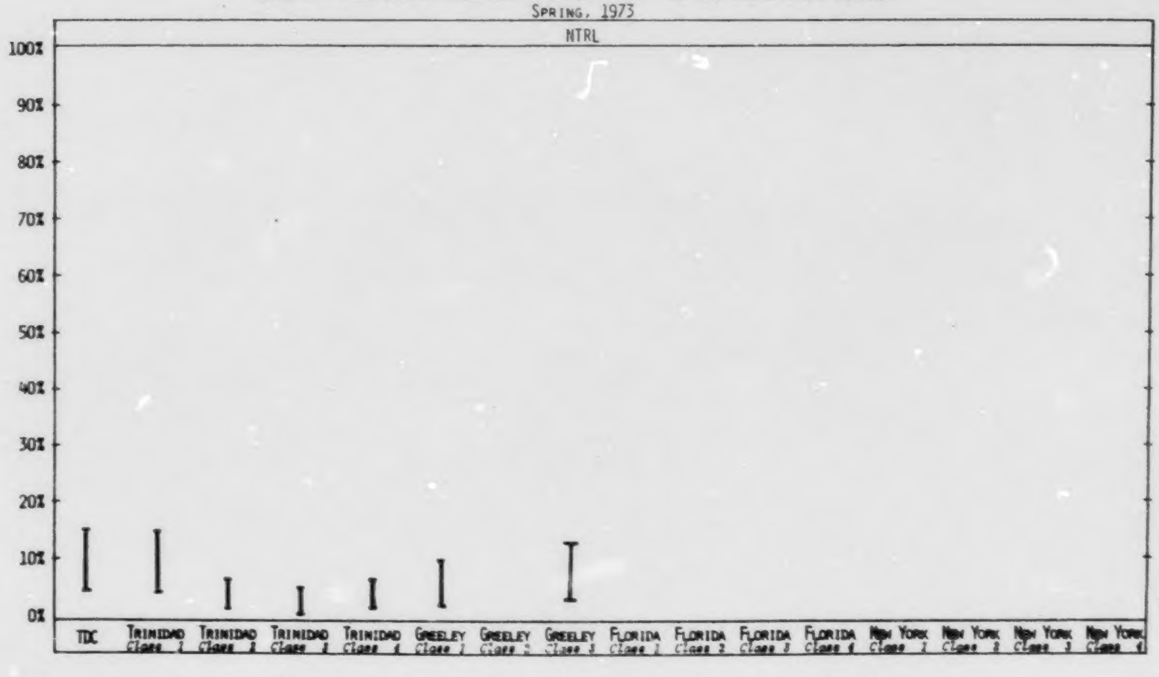
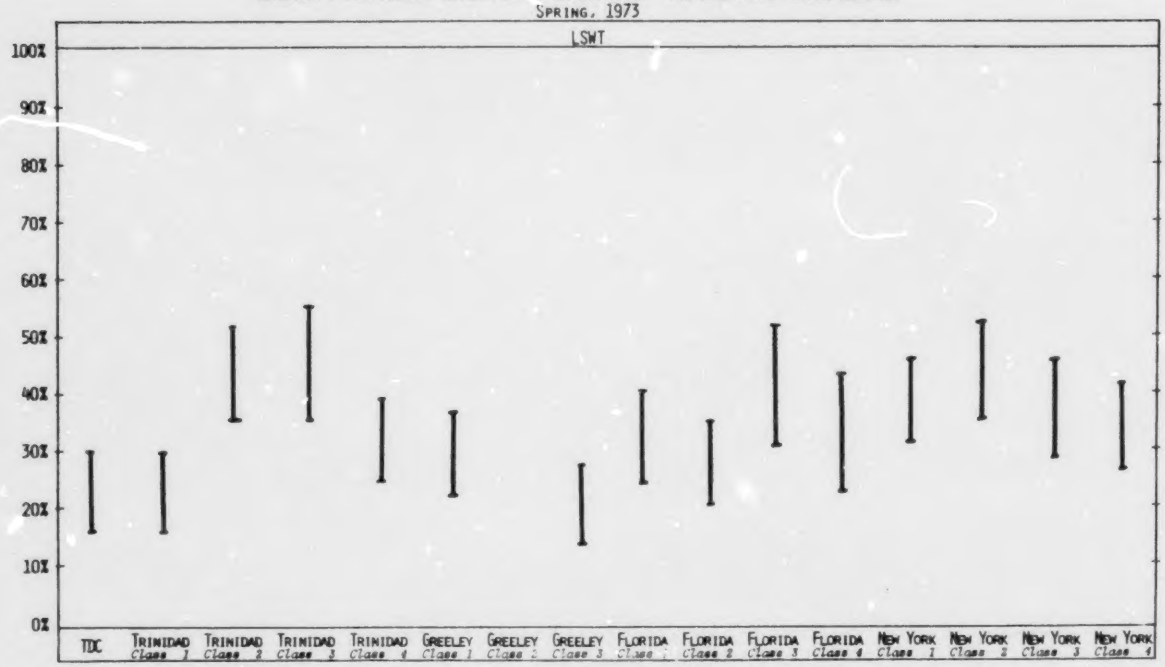


FIGURE 272

GOODMAN'S CONFIDENCE INTERVALS OF CATEGORY 6: TDC AND THIRD GRADE CLASSES

SPRING, 1973



Spring Comparisons of Category 7 Items for the TDC and First Grade Classes

Only one class in Trinidad and Greeley differed from the TDC in the amount of verbal, physical and nonverbal interactions (see Figures 273-275). Interactions in class 2 in Trinidad were less often of a verbal and physical nature than interactions in the TDC. TDC-New York comparisons and TDC-Florida comparisons could not be made because of unreliable Category 7 items.

FIGURE 273

GOODMAN'S CONFIDENCE INTERVALS OF CATEGORY 7: TDC AND FIRST GRADE CLASSES
SPRING, 1973

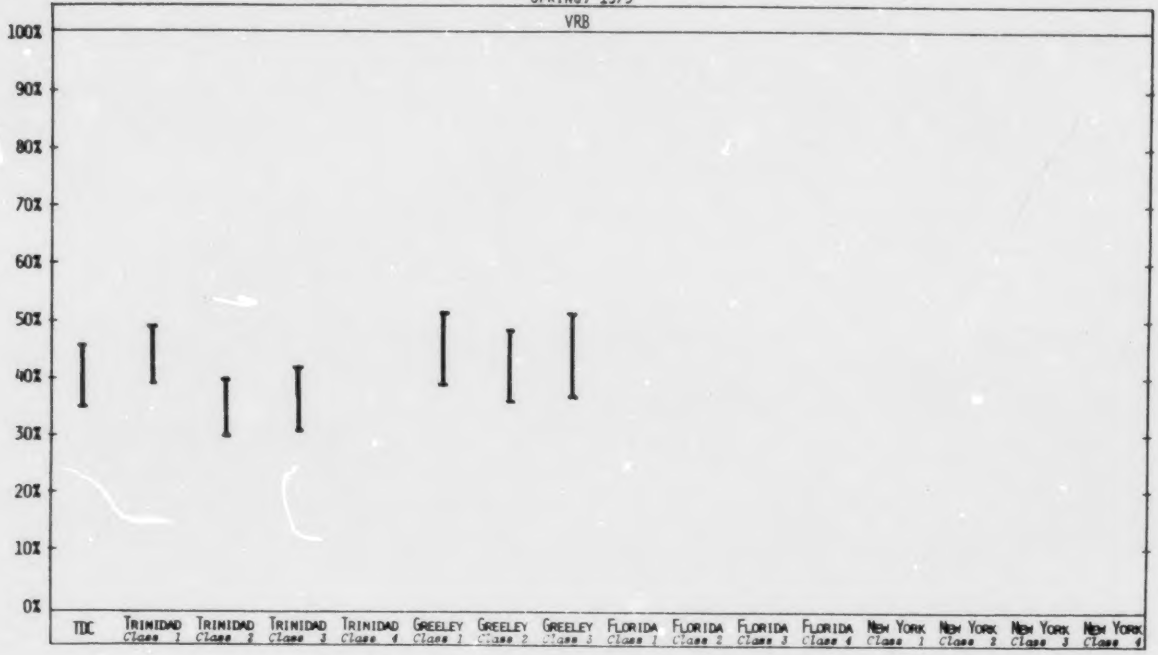


FIGURE 274

GOODMAN'S CONFIDENCE INTERVALS OF CATEGORY 7: TDC AND FIRST GRADE CLASSES
SPRING, 1973

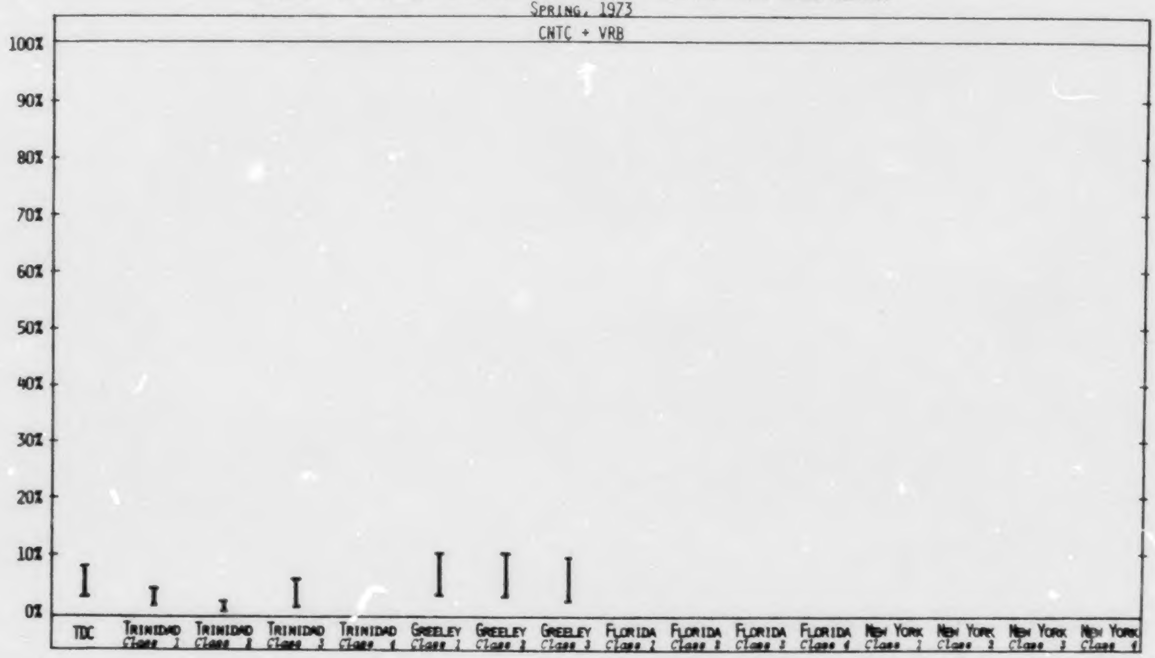
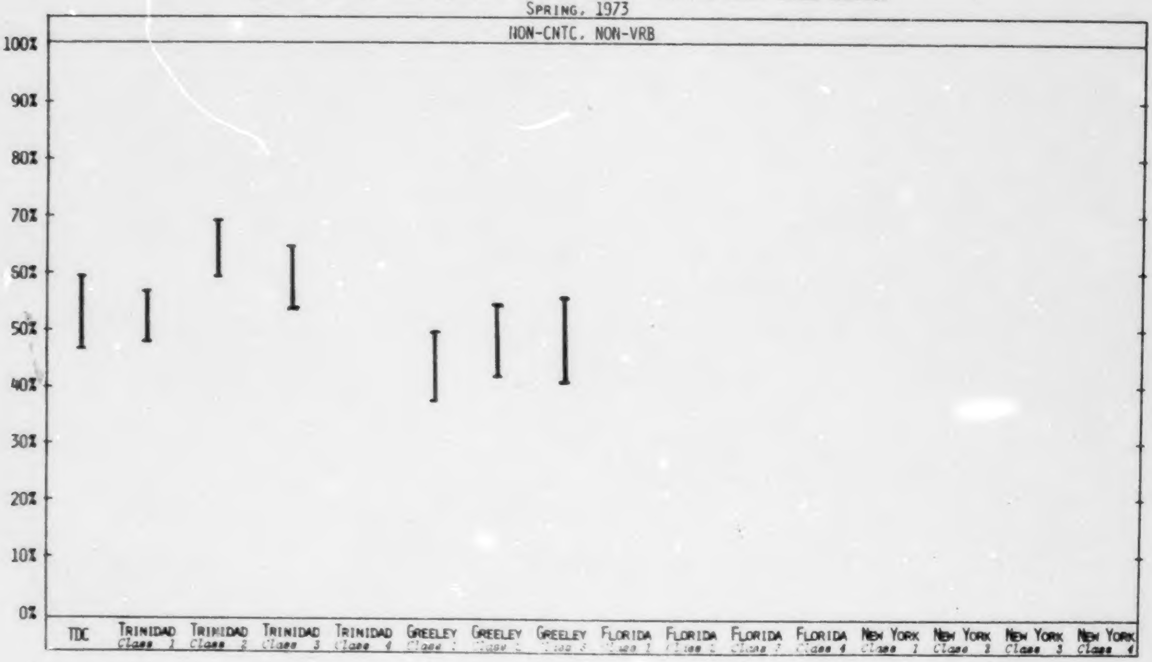


Figure 275
Goodman's Confidence Intervals of Category 7: TDC and First Grade Classes
Spring, 1973



Spring Comparisons of Category 7 Items for the TDC and Third Grade Classes

Again, the TDC could be compared with only two centers, Greeley and Trinidad. Both Trinidad and Greeley look similar to the TDC in the amount of verbal and nonverbal interactions (see Figures 276-278).

Figure 276
Goodman's Confidence Intervals of Category 7: TDC and Third Grade Classes
Spring, 1973

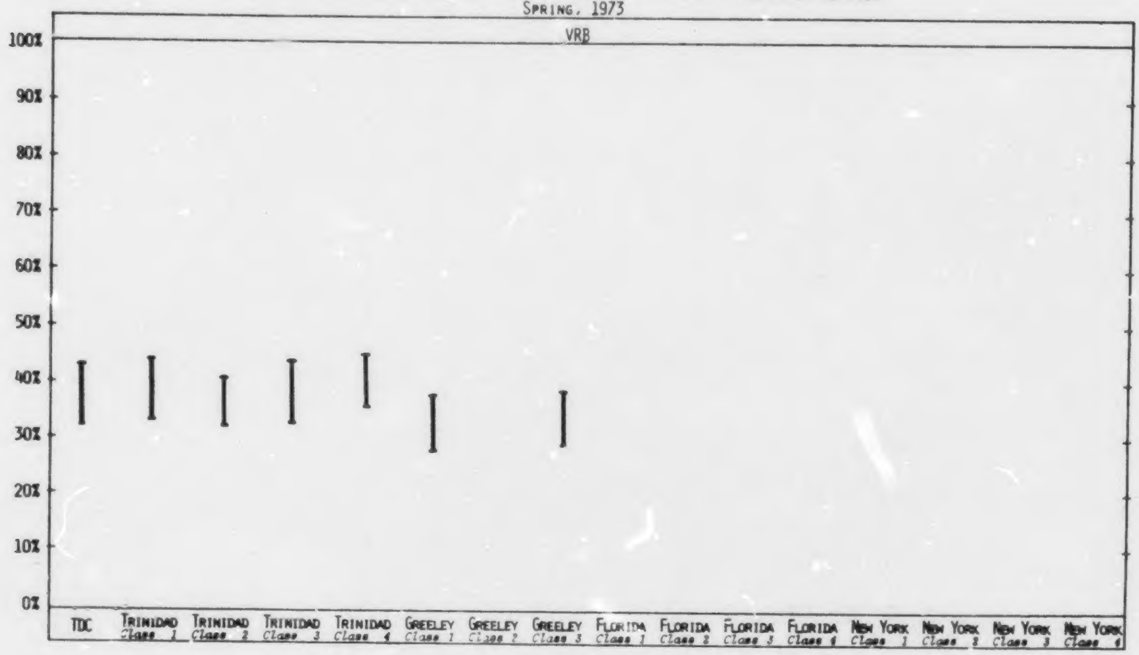


Figure 277
Goodman's Confidence Intervals of Category 7: TDC and Third Grade Classes
Spring, 1973

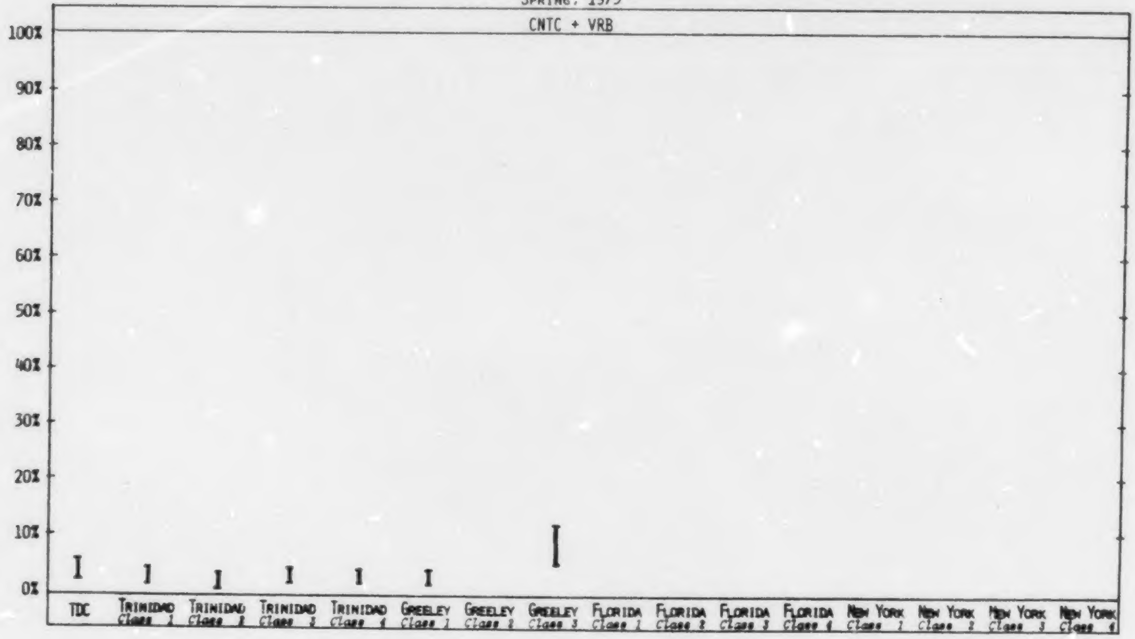
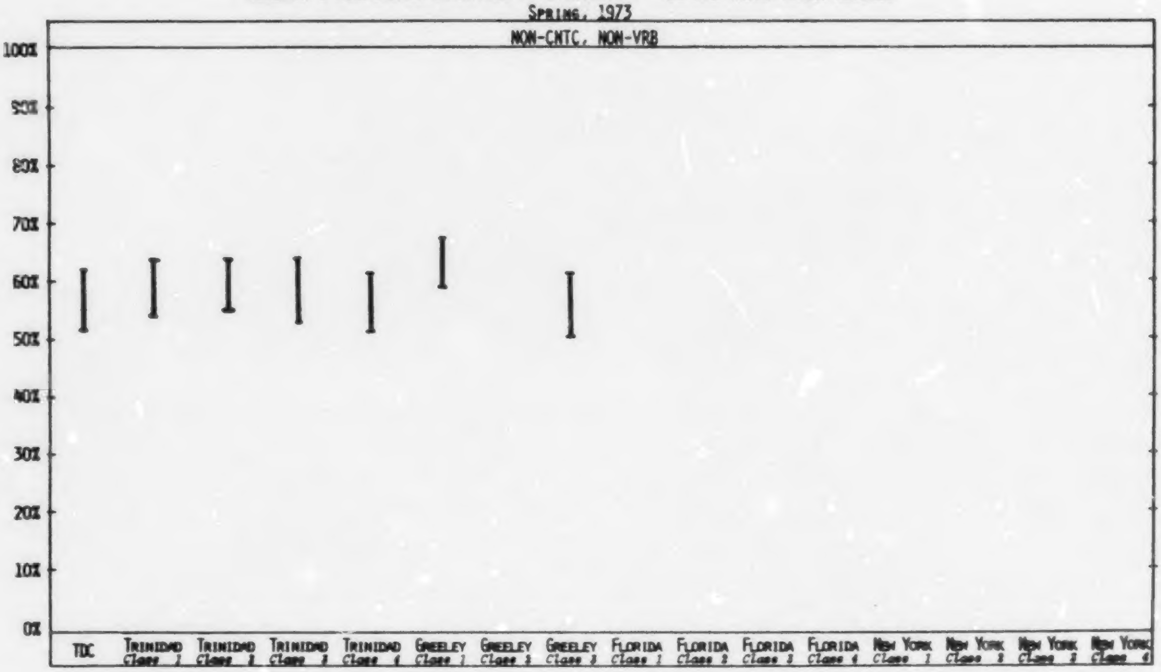


Figure 278

Goodman's Confidence Intervals of Category 7: TDC and Third Grade Classes

Spring, 1973



Spring Comparisons of Category 9 Items for the TDC and First Grade Classes

The use of object materials and reading materials differentiated half of the first grade classes from the TDC (see Figures 279-283). Students in five of the first grade classes read more often than TDC students and used object materials less often. The amount of writing activity and picture-making activity in the first grades was similar to that observed at the TDC and only two classes used pictures more often than the TDC.

Figure 279

Goodman's Confidence Intervals of Category 9: TDC and First Grade Classes

Spring, 1973

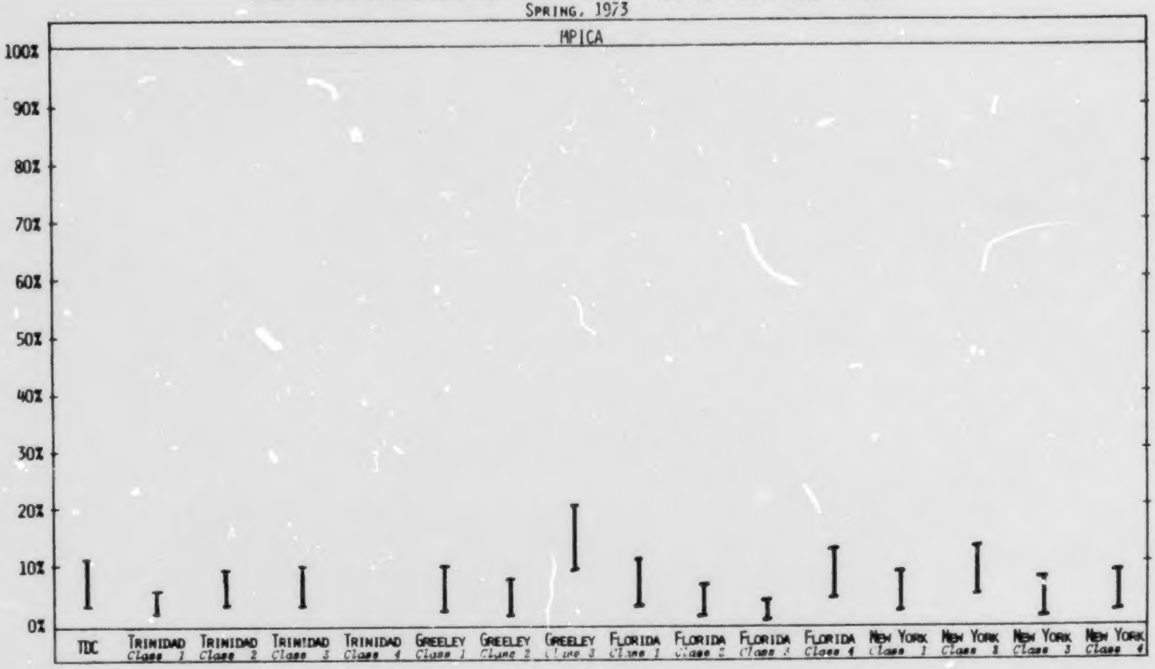


Figure 280

Goodman's Confidence Intervals of Category 9: TDC and First Grade Classes

Spring, 1973

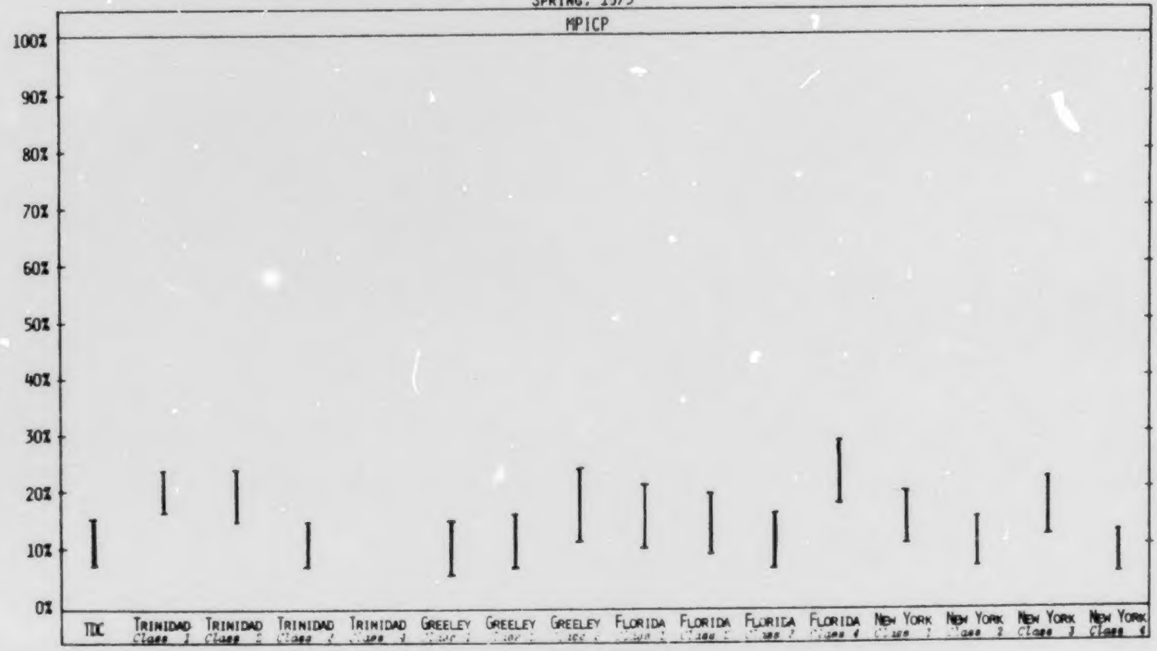


FIGURE 281

GOODMAN'S CONFIDENCE INTERVALS OF CATEGORY 9: TDC AND FIRST GRADE CLASSES

SPRING, 1973

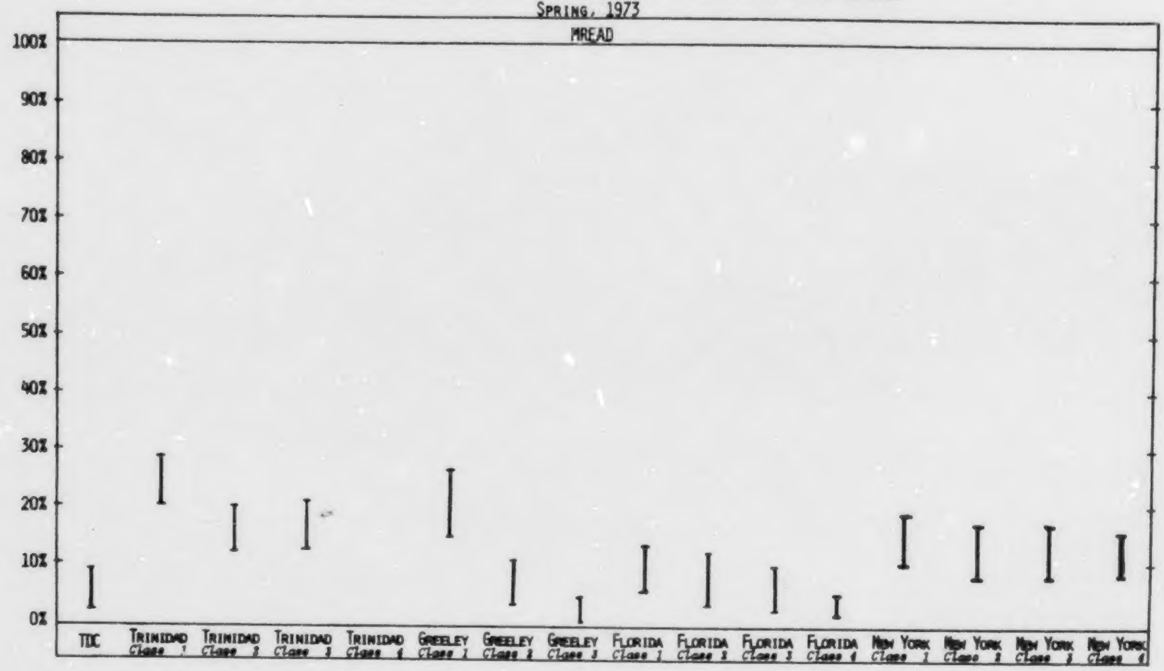


FIGURE 282

GOODMAN'S CONFIDENCE INTERVALS OF CATEGORY 9: TDC AND FIRST GRADE CLASSES

SPRING, 1973

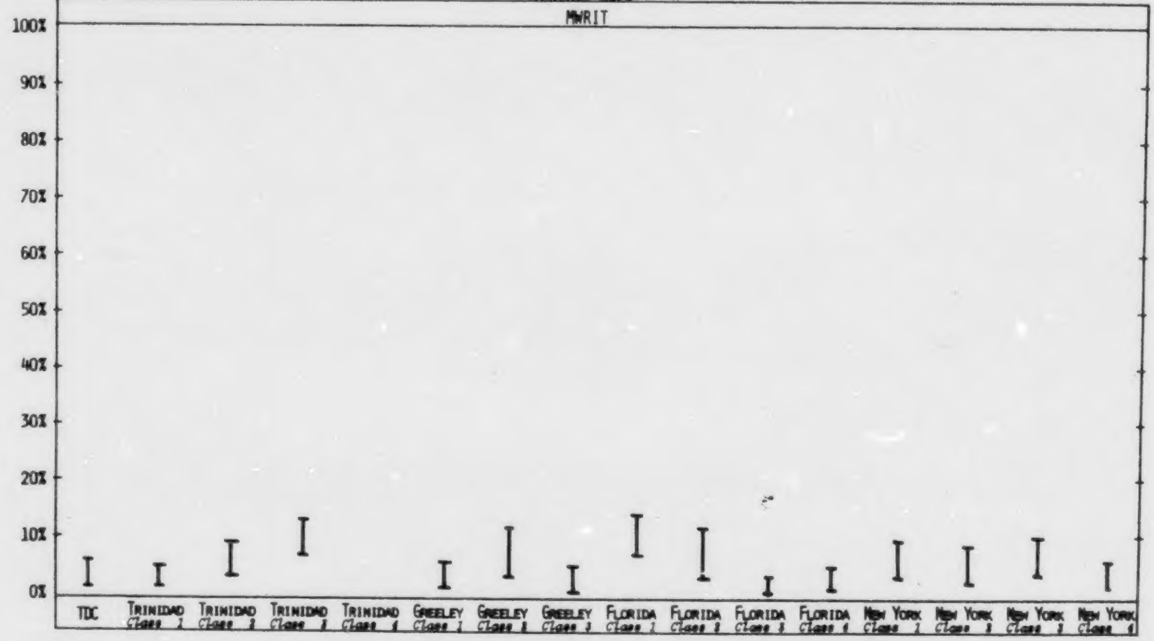
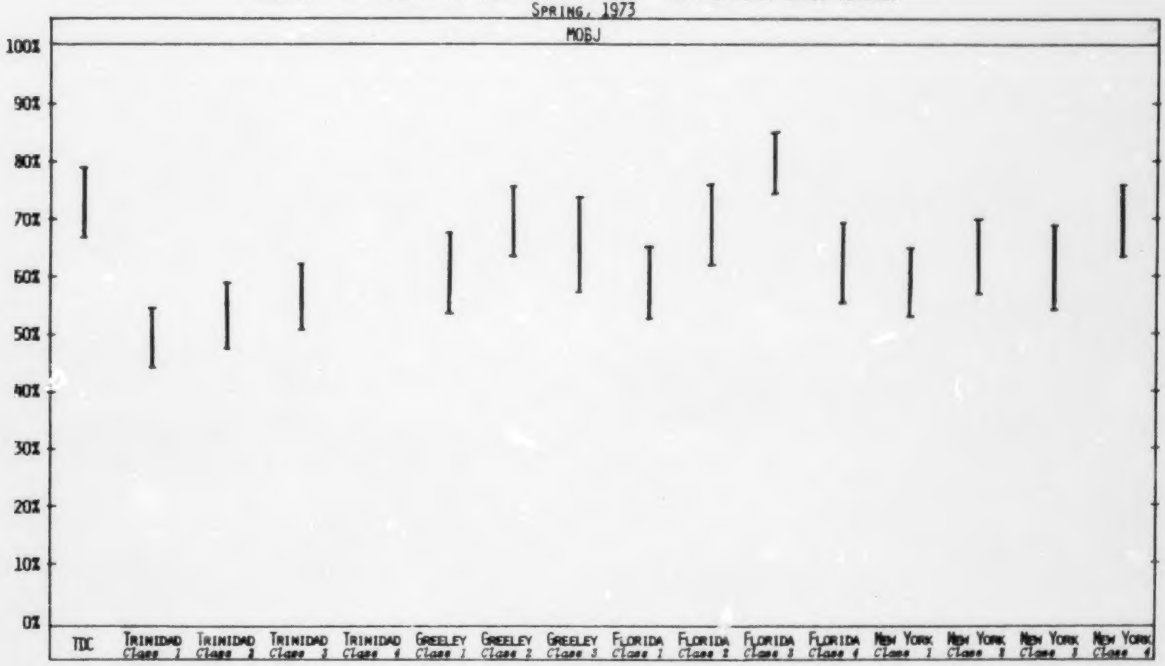


FIGURE 283
GOODMAN'S CONFIDENCE INTERVALS OF CATEGORY 9: TDC AND FIRST GRADE CLASSES
SPRING, 1973



Spring Comparisons of Category 9 Items for the TDC and Third Grade Classes

The type of materials used varied in all but one of the third grade classes when compared with the TDC (see Figures 284-288). These comparisons indicated that third grade students read more often than TDC students and used object materials less often. Only two classes differed from the TDC in the amount of writing activity children were engaged in. Children in two of the Trinidad classes were more often involved in activities of this nature than TDC students. The amount of picture material used did not vary between the third grade classes and the TDC.

Figure 284
Goodman's Confidence Intervals of Category 9: TDC and Third Grade Classes
Spring, 1973

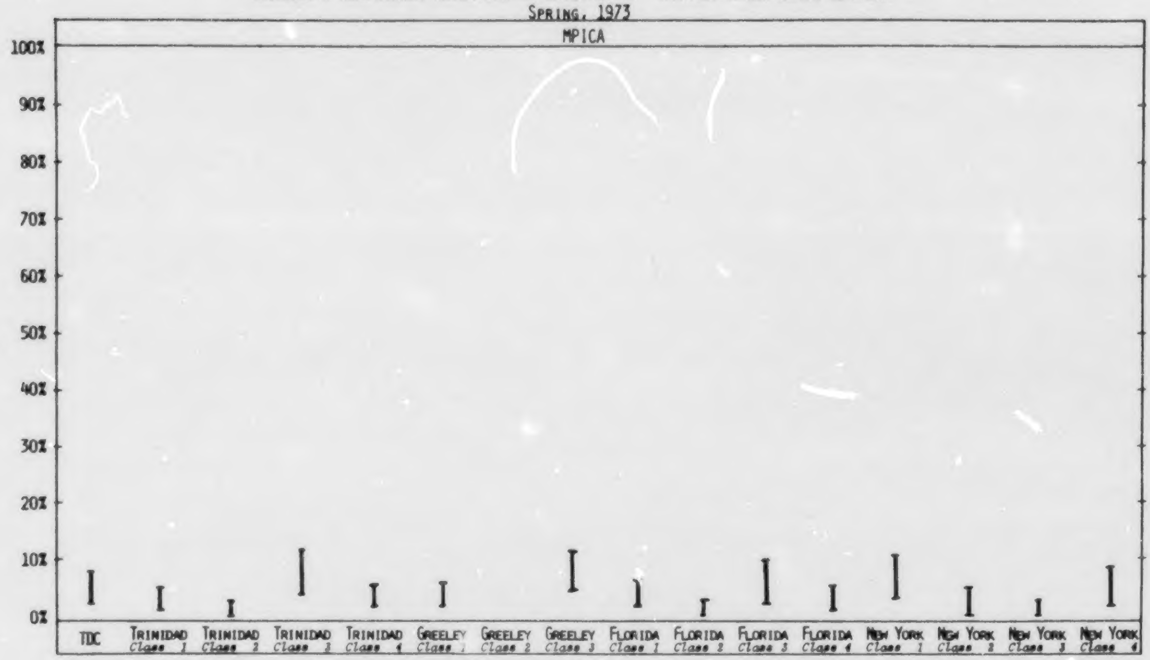


Figure 285
Goodman's Confidence Intervals of Category 9: TDC and Third Grade Classes
Spring, 1973

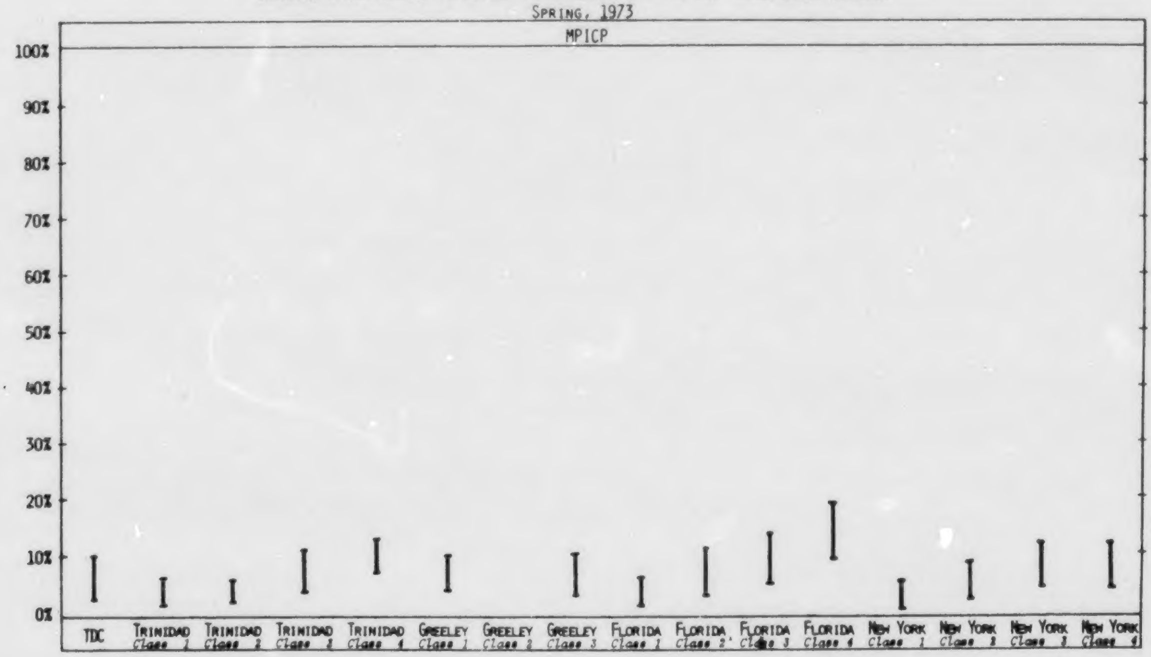


FIGURE 286

GOODMAN'S CONFIDENCE INTERVALS OF CATEGORY 9: TDC AND THIRD GRADE CLASSES

SPRING, 1973

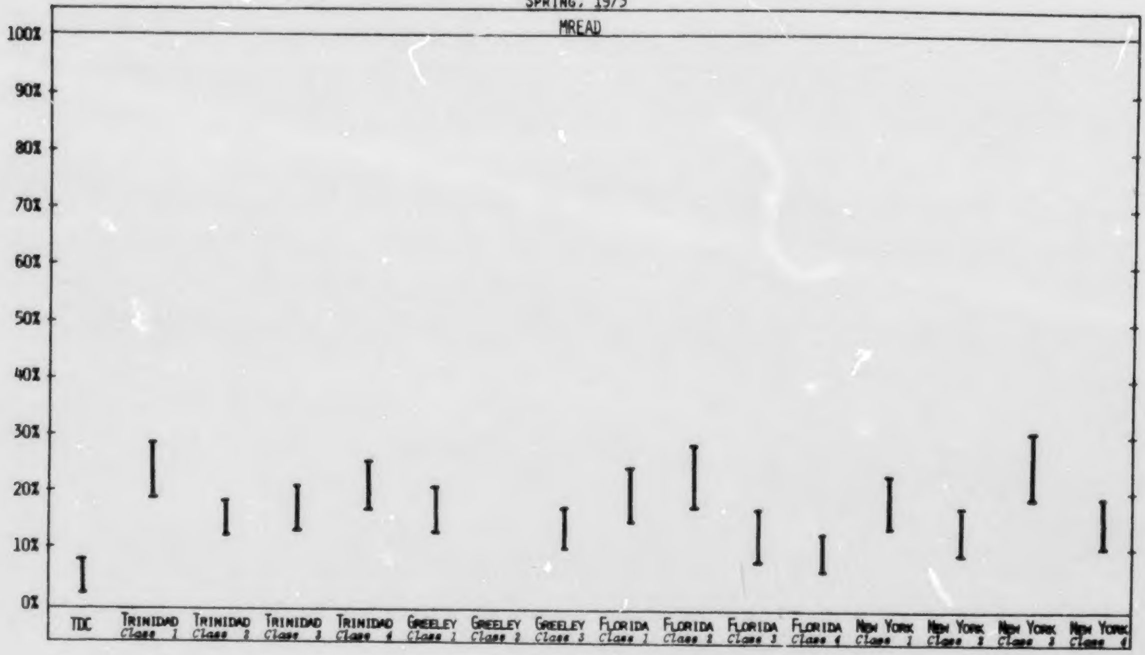


FIGURE 287

GOODMAN'S CONFIDENCE INTERVALS OF CATEGORY 9: TDC AND THIRD GRADE CLASSES

SPRING, 1973

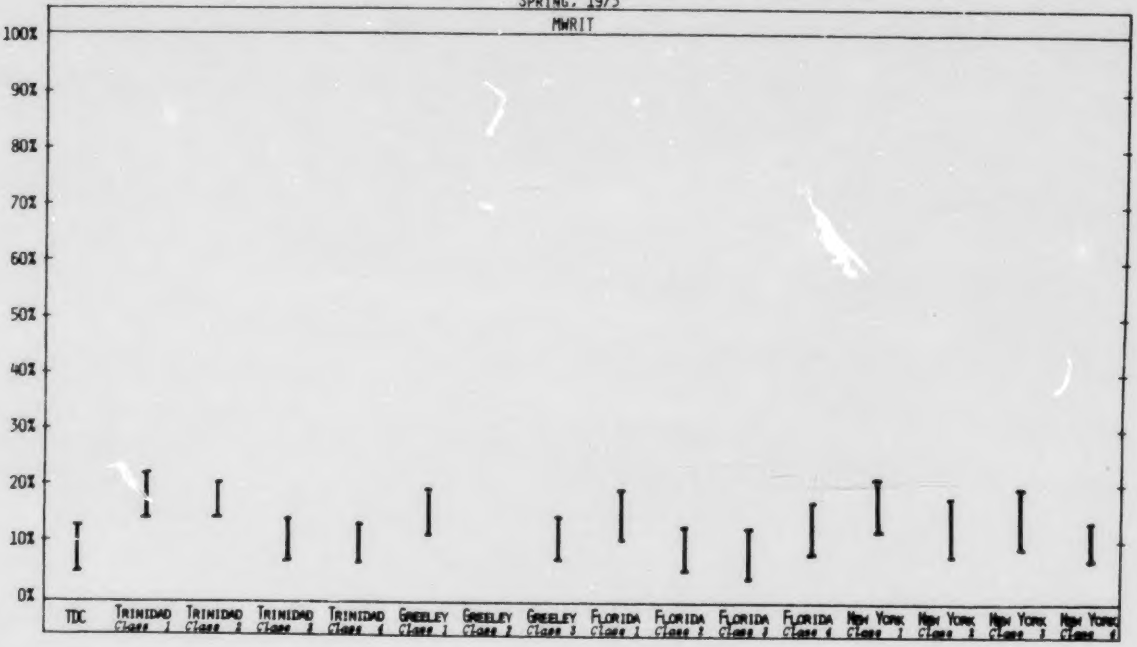
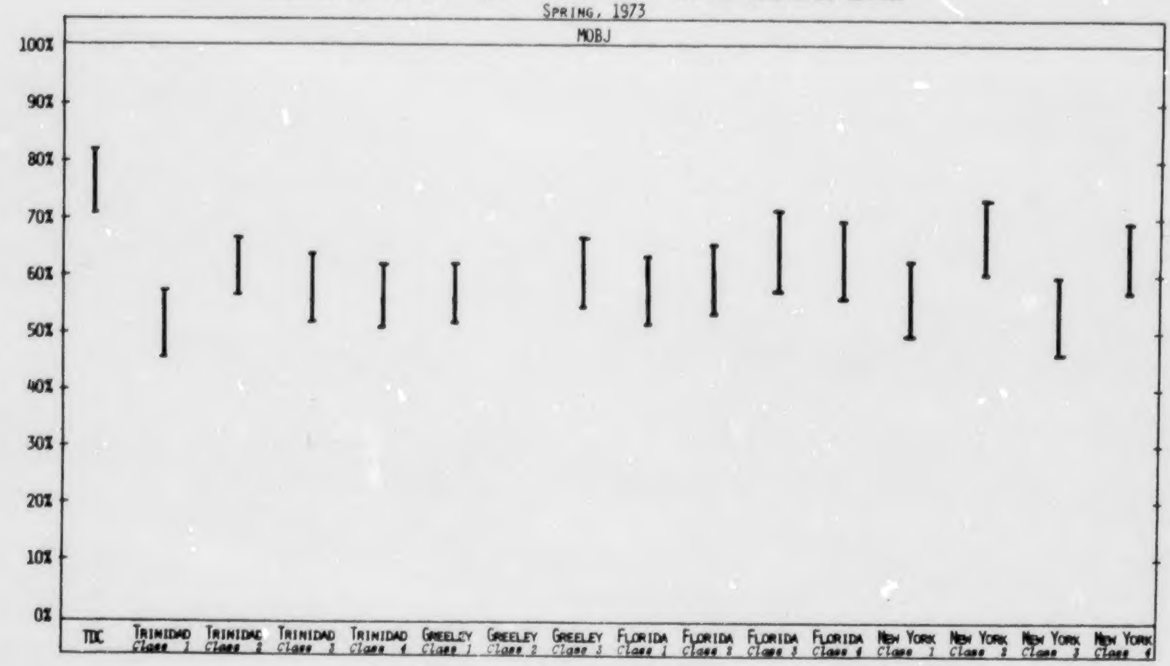


FIGURE 288
GOODMAN'S CONFIDENCE INTERVALS OF CATEGORY 9: TDC AND THIRD GRADE CLASSES
SPRING, 1973



Spring Comparisons of Category 12 Items for the TDC and First Grade Classes

All of the first grade classes except three differed from the TDC in the size of the group students were in (see Figures 289-293). Children in one-third of these first grade classes were more often in groups containing more than eleven students than the TDC first grade students. Children in one of the Trinidad first grade classes were less often in groups containing six to ten students and children in two classes in Greeley were more often in goups this size.

Students in five of the six classes in Greeley and Trinidad were more often by themselves than TDC first graders.

The occurrence of groups of size two differentiated four classes from the TDC, three classes having more occurrence of groups of this size than the TDC and one having less, and groups of three to five differentiated only one class which had more occurrence of groups this size than the TDC.

FIGURE 289

GOODMAN'S CONFIDENCE INTERVALS OF CATEGORY 12: TDC AND FIRST GRADE CLASSES
SPRING, 1973

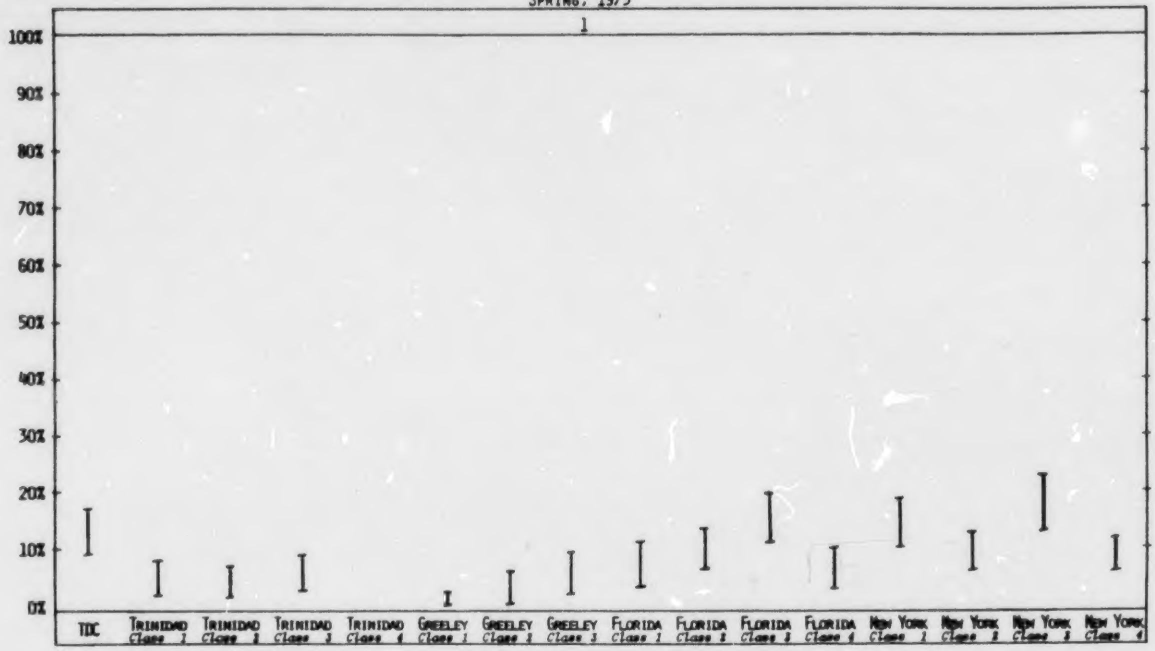


FIGURE 290

GOODMAN'S CONFIDENCE INTERVALS OF CATEGORY 12: TDC AND FIRST GRADE CLASSES
SPRING, 1973

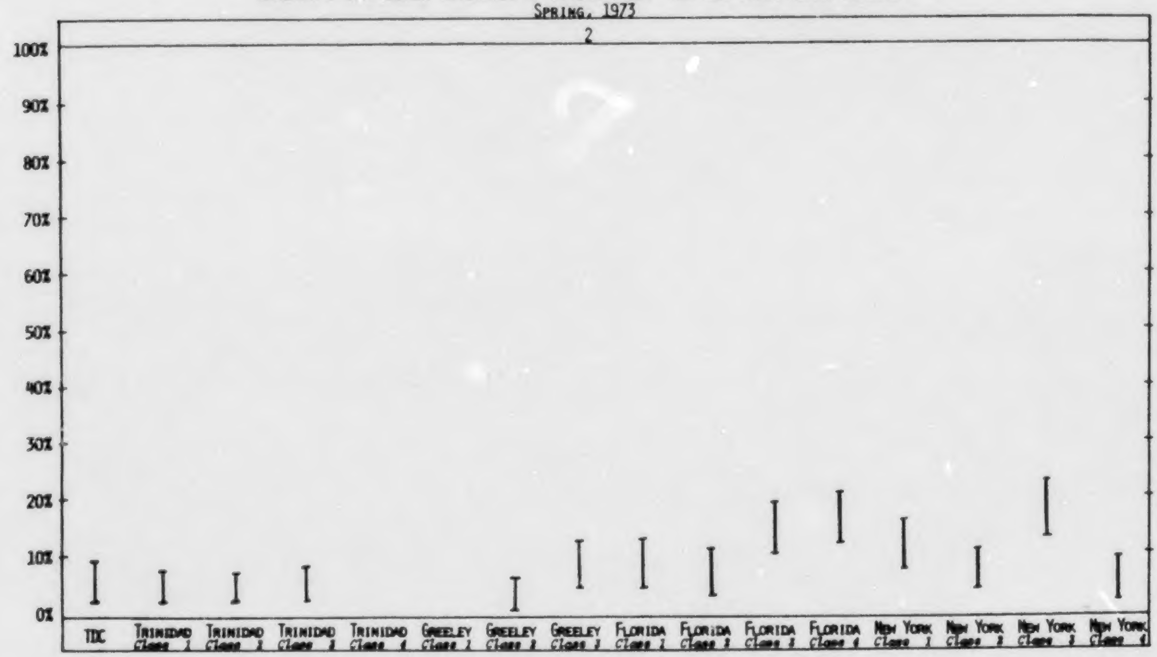


Figure 291

Goodman's Confidence Intervals of Category 12: TDC and First Grade Classes

Spring, 1973

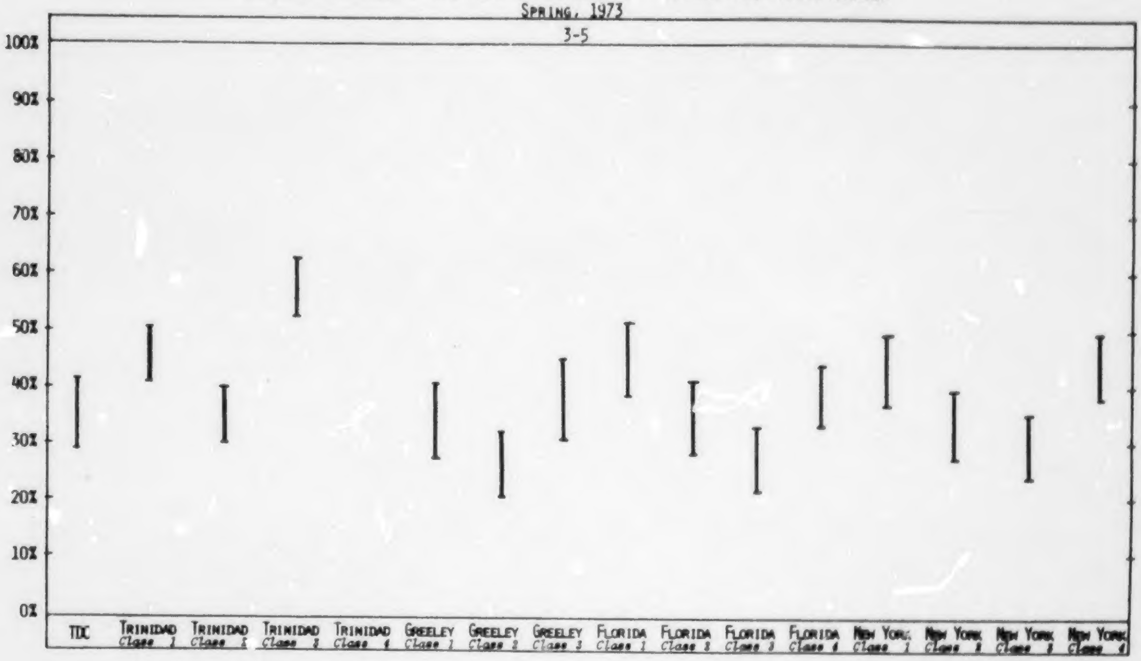


Figure 292

Goodman's Confidence Intervals of Category 12: TDC and First Grade Classes

Spring, 1973

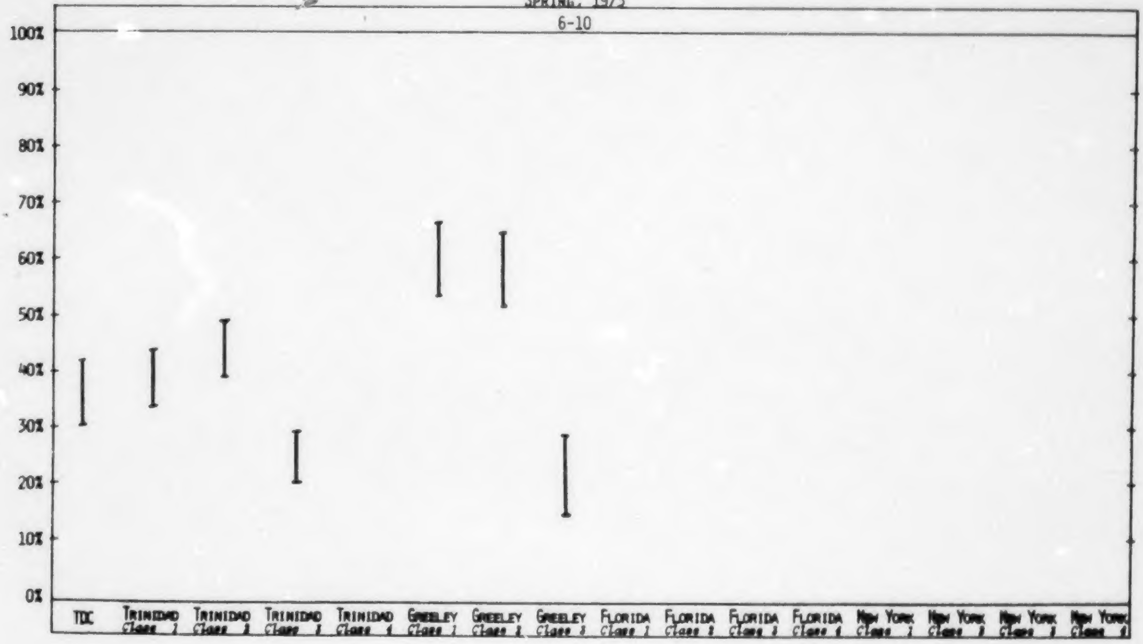
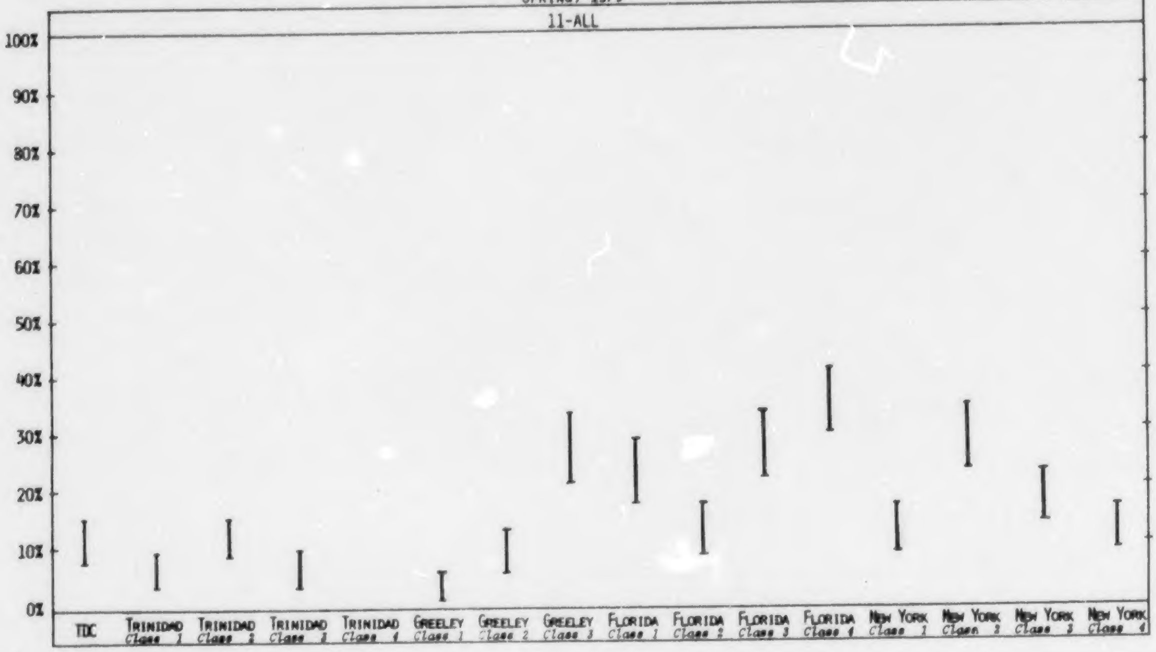


Figure 293

Goodman's Confidence Intervals of Category 12: TDC and First Grade Classes
Spring, 1973



Spring Comparisons of Category 12 Items for the TDC and Third Grade Classes

All the third grade classes differed from the TDC on this variable (see Figures 294-298). Students in two of these classes were less often in groups of six to ten students than students in the TDC and students in two other classes were more often in groups containing six to ten students. Three of the New York classes had higher frequencies of groups containing more than eleven students than the TDC but students in six of the Florida, Greeley and Trinidad classes were less often in groups of this size than TDC students.

Students in seven of the third grade classes were more often in groups of three to five students than students in the TDC. Groups of size one differentiated two classes from the TDC as did the occurrence of groups of two. In these instances the TDC had more occurrence of groups of one or two children.

FIGURE 294

GOODMAN'S CONFIDENCE INTERVALS OF CATEGORY 12: TDC AND THIRD GRADE CLASSES

SPRING, 1973

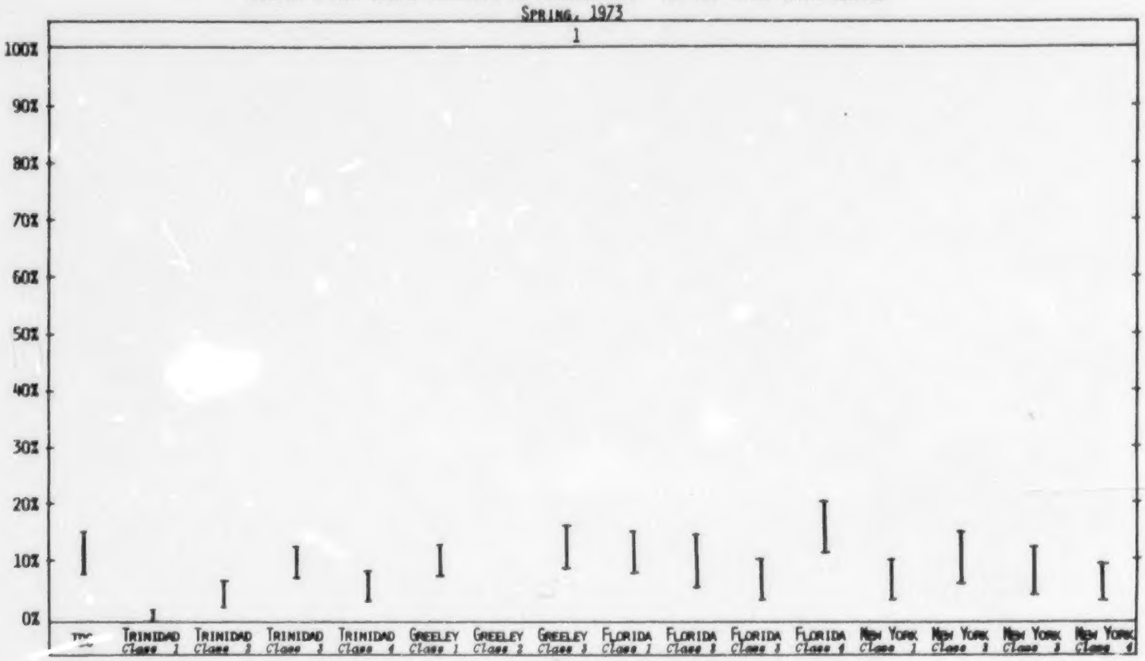


FIGURE 295

GOODMAN'S CONFIDENCE INTERVALS OF CATEGORY 12: TDC AND THIRD GRADE CLASSES

SPRING, 1973

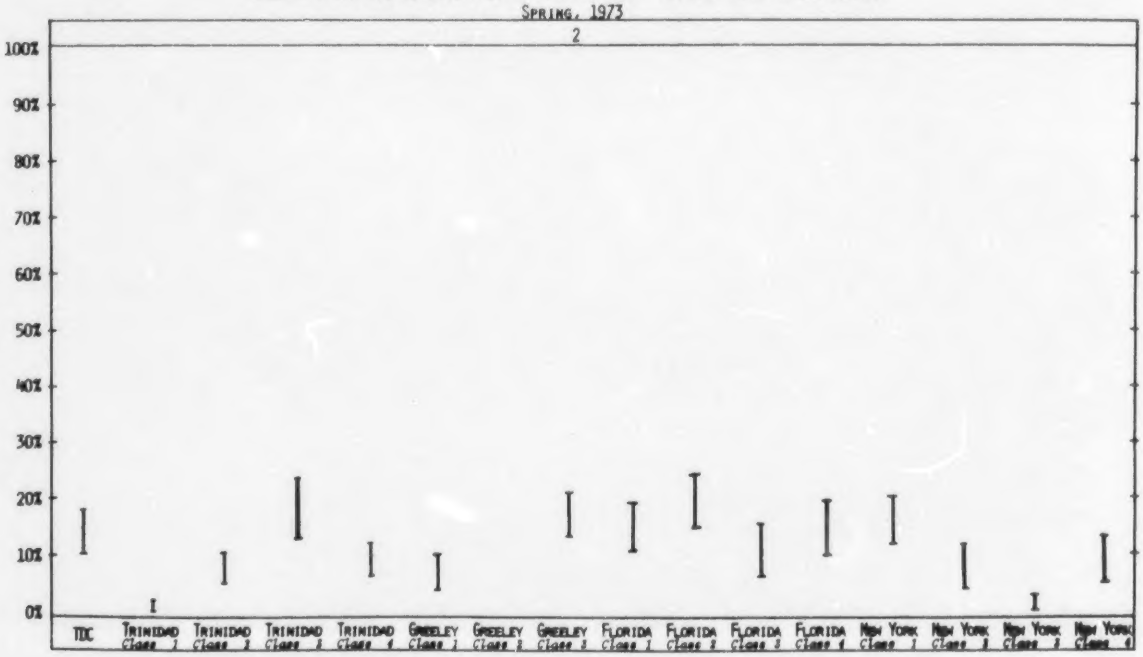


FIGURE 296

GOODMAN'S CONFIDENCE INTERVALS OF CATEGORY 12: TDC AND THIRD GRADE CLASSES

SPRING, 1973

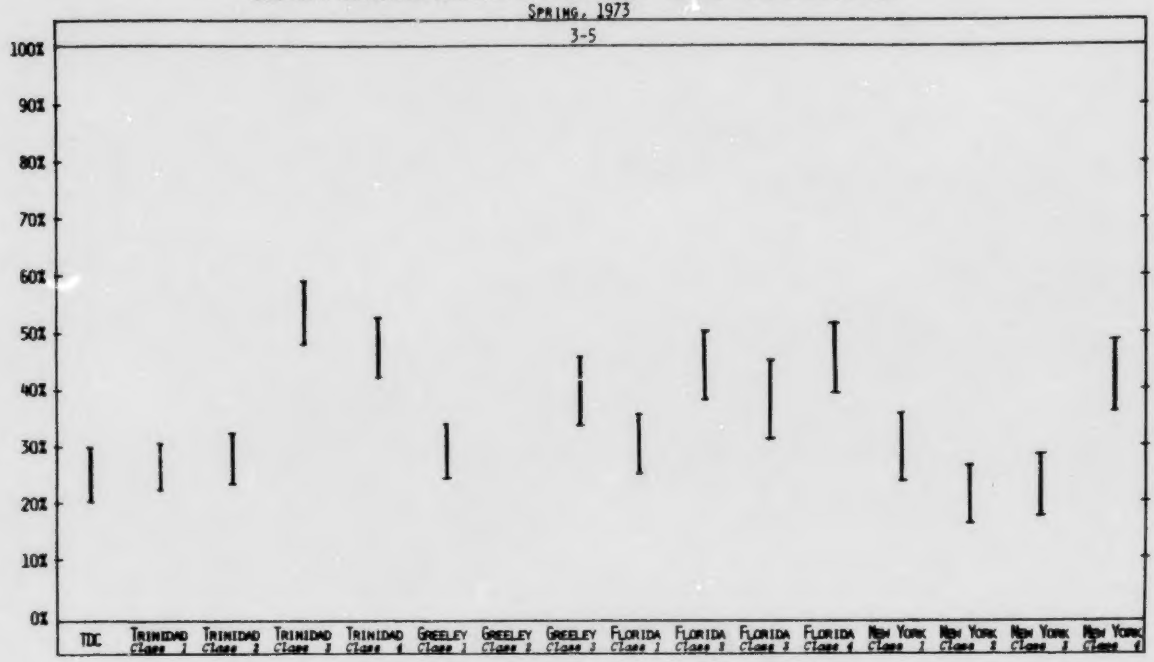


FIGURE 297

GOODMAN'S CONFIDENCE INTERVALS OF CATEGORY 12: TDC AND THIRD GRADE CLASSES

SPRING, 1973

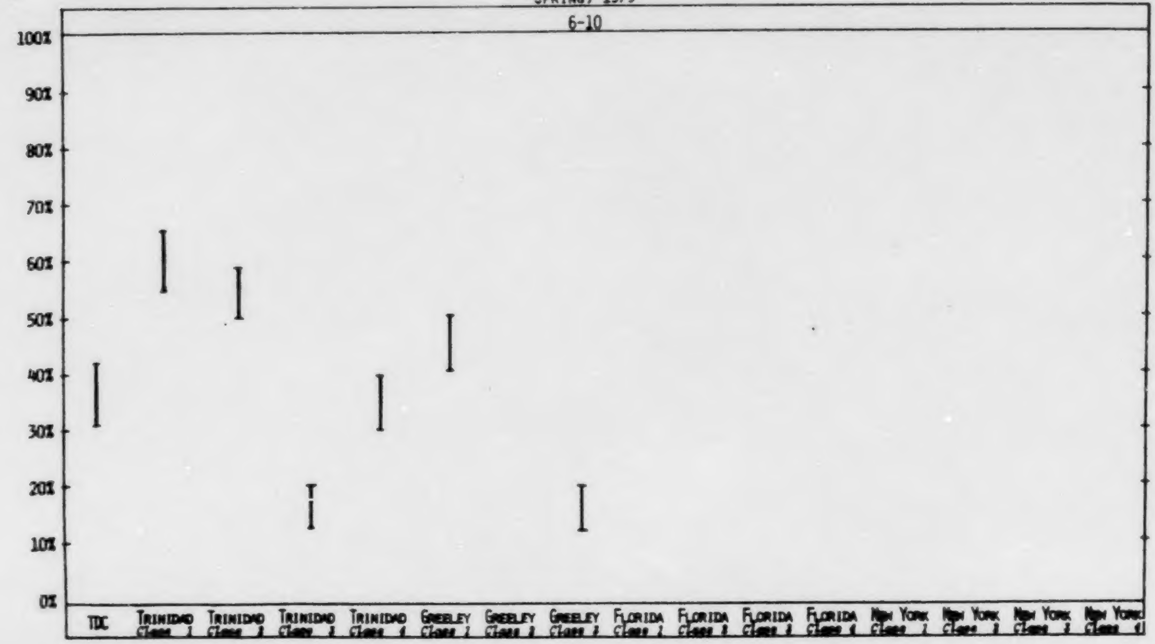
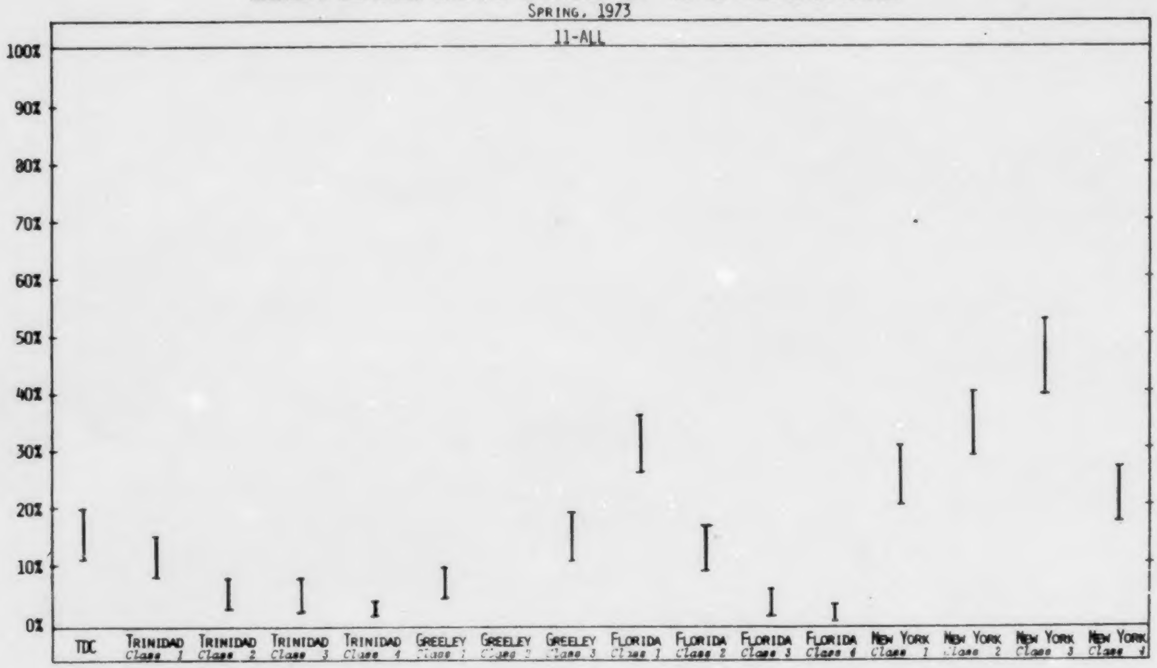


Figure 298
Goodman's Confidence Intervals of Category 12: TDC and Third Grade Classes
Spring, 1973



Spring Comparisons of Category 15 Items for the TDC and First Grade Classes

Six of the first grade classes differed from the TDC in the amount of child-selected activities occurring in the classrooms (see Figures 299-305). Children in all of the Trinidad classes and two of the Greeley classes were less often involved in child-selected activities than TDC first graders and children in class 3 in Florida were more often involved in these activities. Children in the Trinidad classes and children in two of the Greeley classes spent a larger portion of their school day in teacher-directed activities than TDC students.

New York and Florida classes were similar to the TDC in the amount of time spent in large group, teacher-structured activities, in clean-up activities and in evaluating work time experiences. Trinidad and Greeley students did not differ from the TDC in the amount of time children spent in planning their activities or in larger group activities such as square dancing or singing, and differed only slightly in the amount of time spent in larger group, teacher-structured activities.

FIGURE 299
GOODMAN'S CONFIDENCE INTERVALS OF CATEGORY 15: TDC AND FIRST GRADE CLASSES
SPRING, 1973

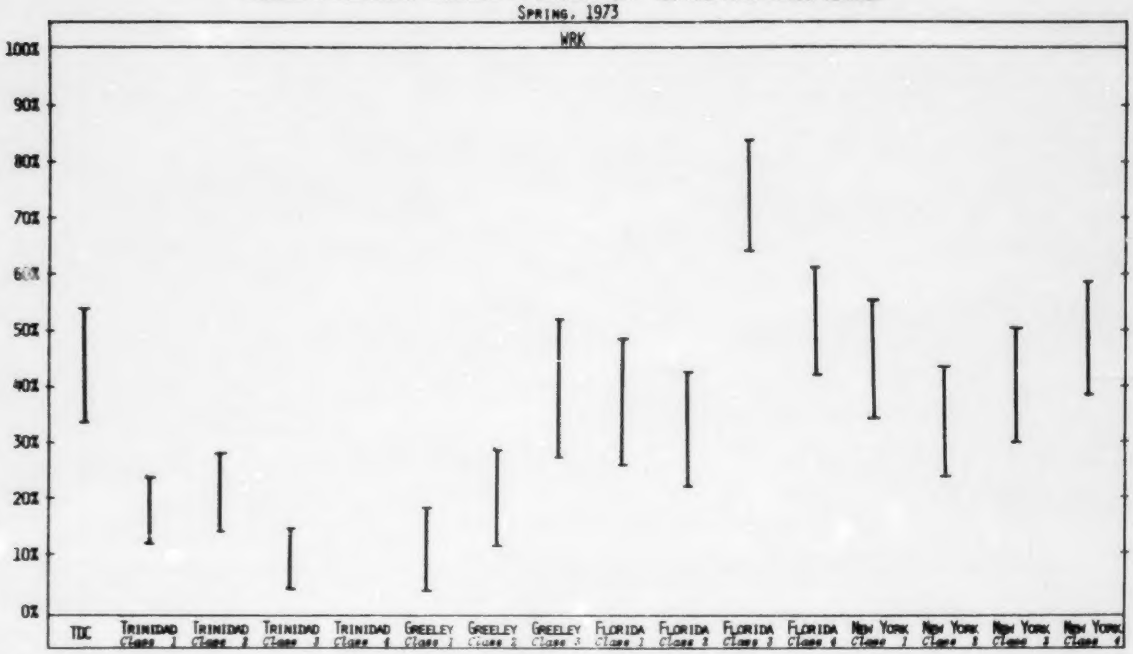


FIGURE 300
GOODMAN'S CONFIDENCE INTERVALS OF CATEGORY 15: TDC AND FIRST GRADE CLASSES
SPRING, 1973

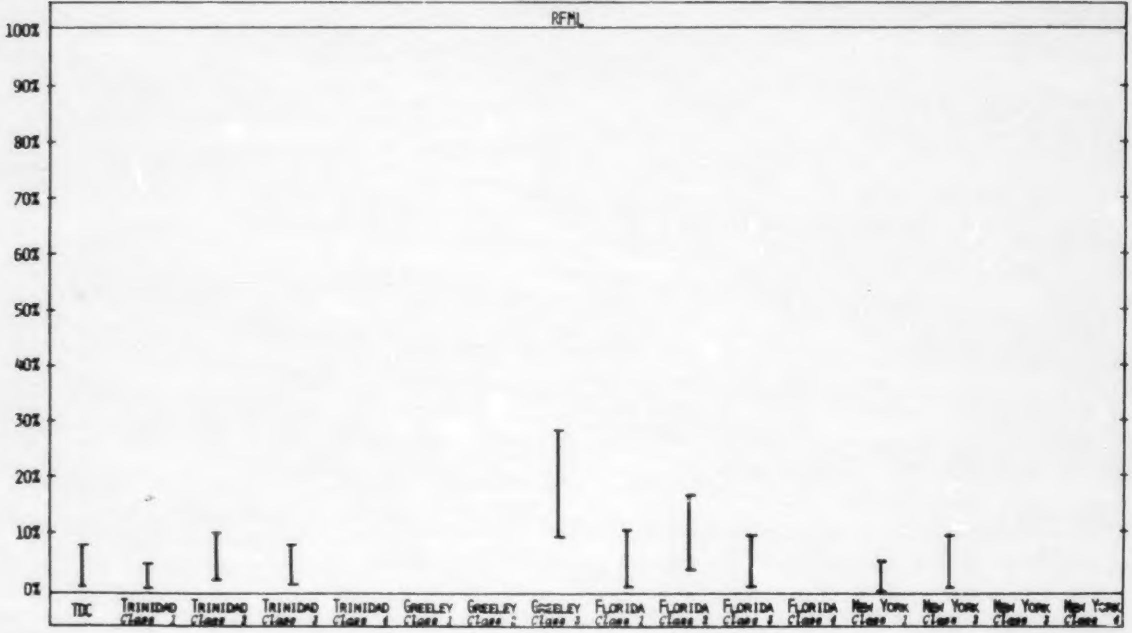


Figure 301
Goodman's Confidence Intervals of Category 15: TDC and First Grade Classes
Spring, 1973

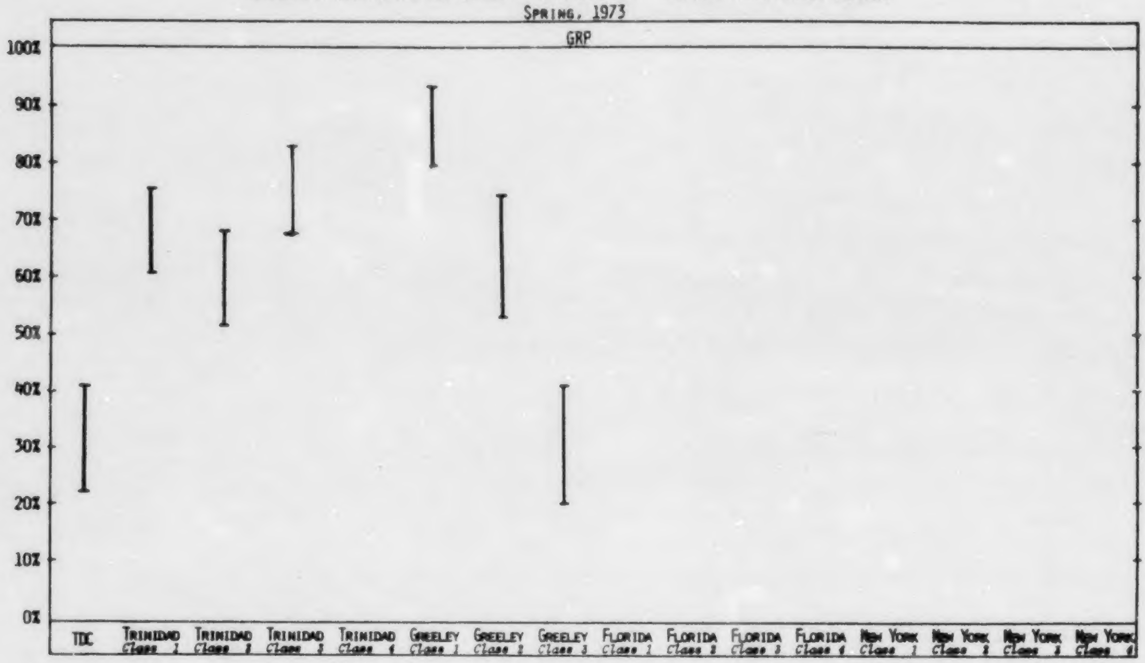


Figure 302
Goodman's Confidence Intervals of Category 15: TDC and First Grade Classes
Spring, 1973

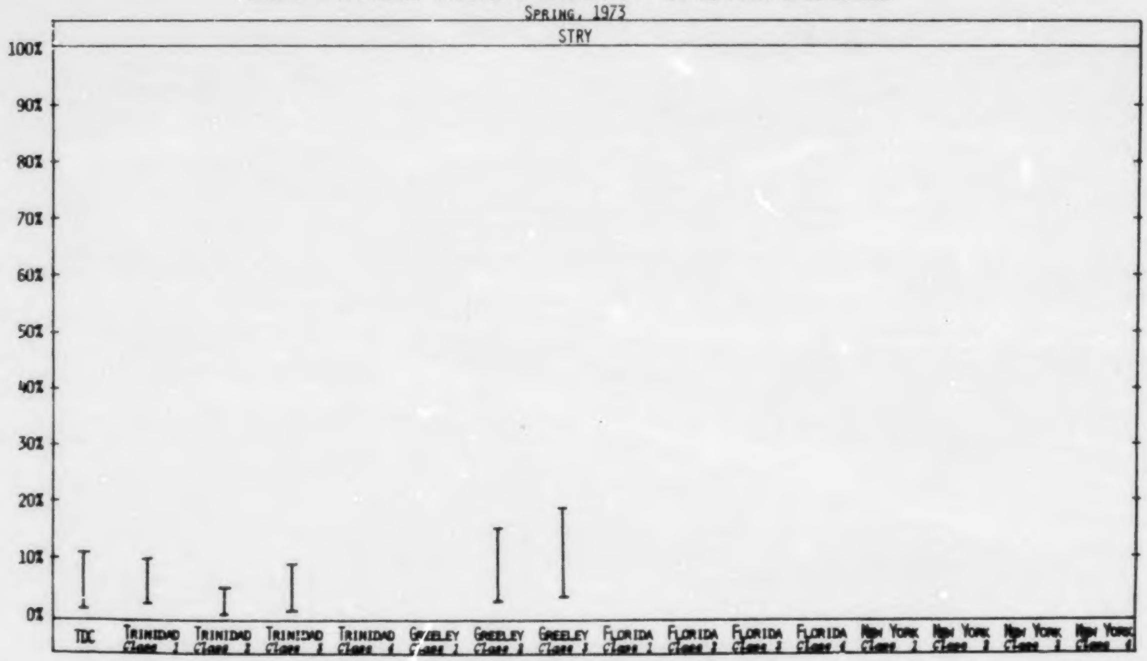


Figure 303

Goodman's Confidence Intervals of Category 15: TDC and First Grade Classes

Spring, 1973

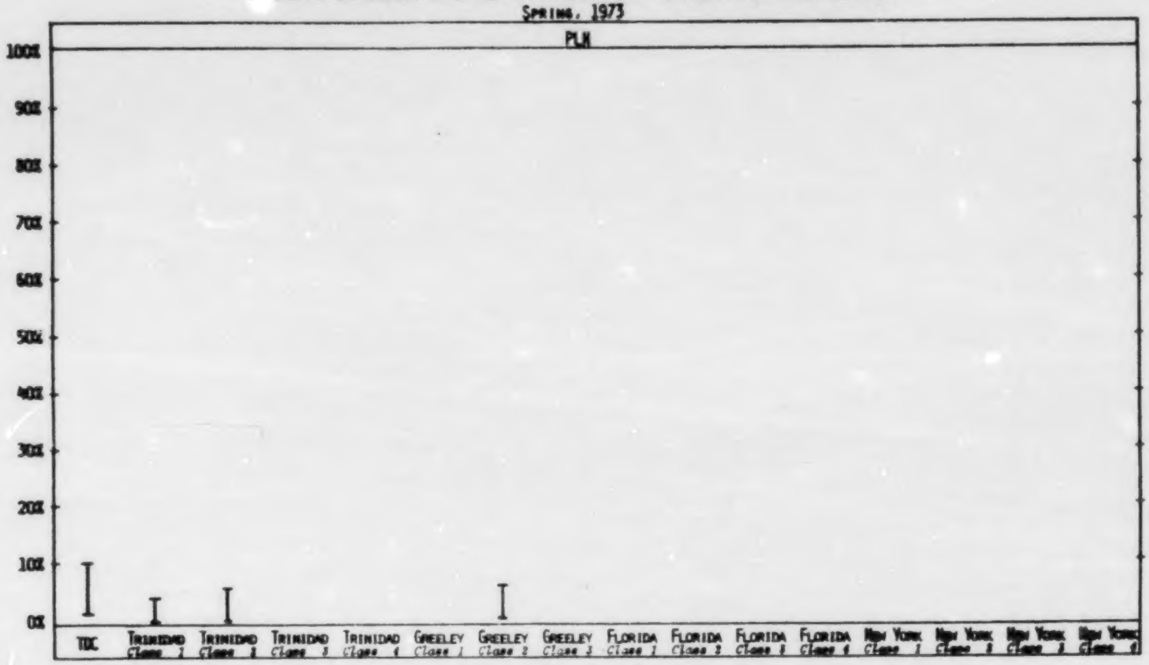


Figure 304

Goodman's Confidence Intervals of Category 15: TDC and First Grade Classes

Spring, 1973

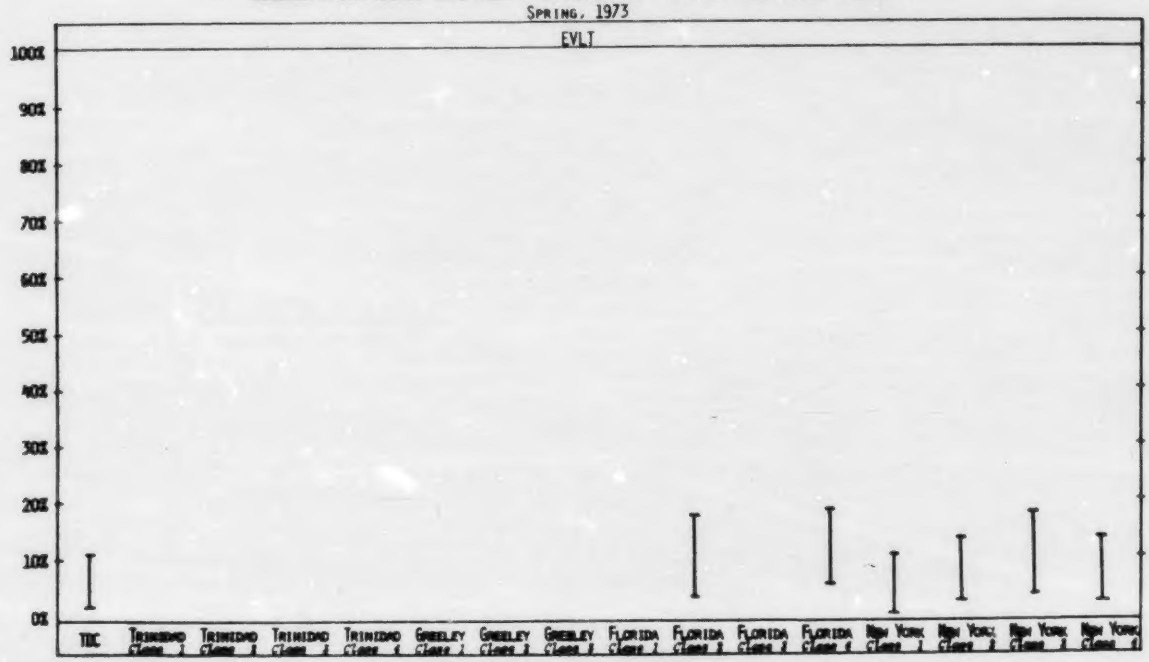
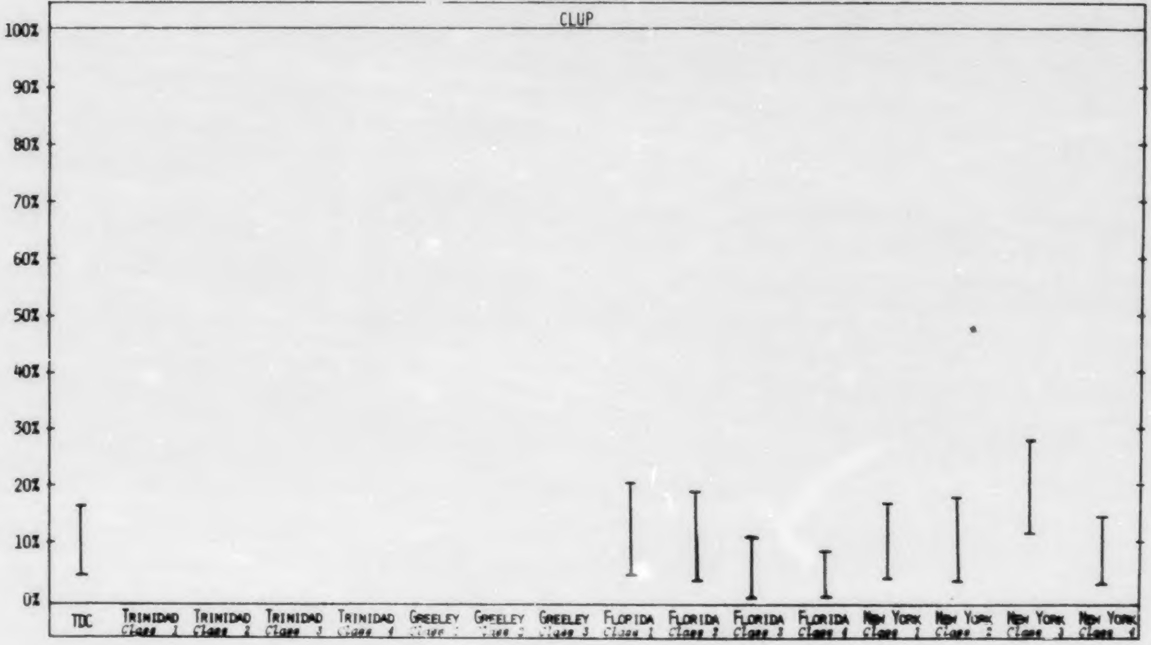


FIGURE 305
GOODMAN'S CONFIDENCE INTERVALS OF CATEGORY 15: TDC AND FIRST GRADE CLASSES
SPRING, 1973



Spring Comparisons of Category 15 Items for the TDC and Third Grade Classes

Seven of the fifteen third grade classes differed from the TDC in the amount of time spent in child-selected activities (see Figures 306-312). Four of the classes spent more time in activities of this nature and three classes spent less time in child-selected activities than the TDC students.

Variations between Florida and New York classes and the TDC in the amount of time spent in evaluating work time activities, in clean-up activities and large group, teacher-structured activities were small.

Five of the Trinidad and Greeley classes differed from the TDC in the amount of teacher-directed activities--four of the classes had more teacher-directed activities than the TDC and one class had less. These six classes were similar to the TDC in the amount of time spent in large group, teacher-structured activities, planning time and large group activities such as music.

Figure 306

Goodman's Confidence Intervals of Category 15: TDC and Third Grade Classes

Spring, 1973

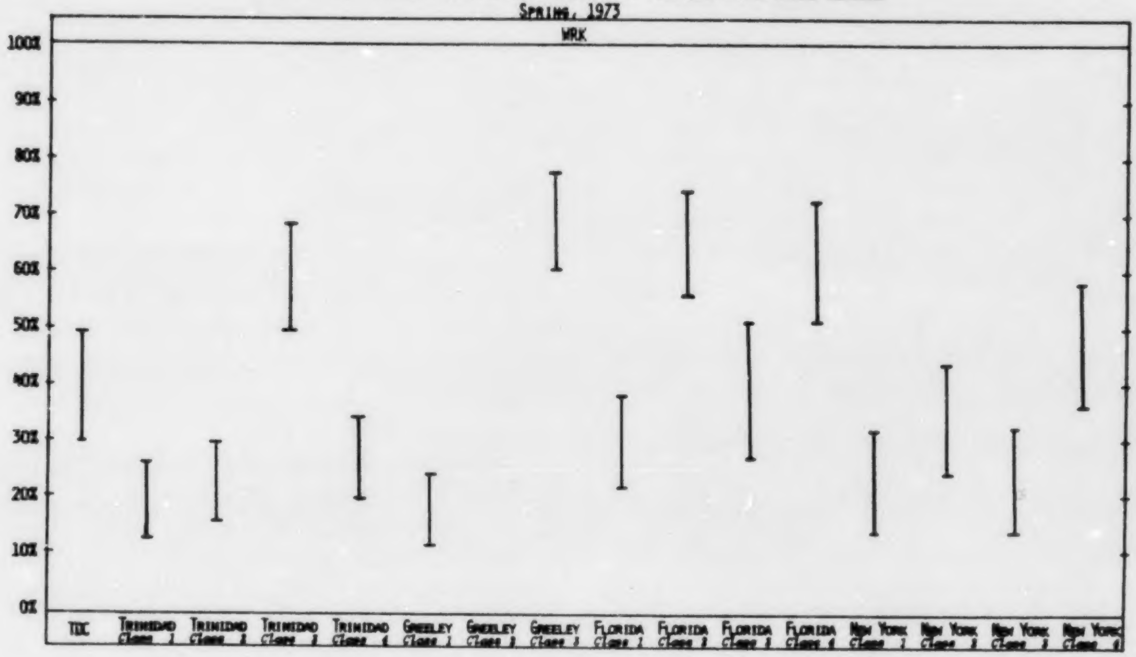


Figure 307

Goodman's Confidence Intervals of Category 15: TDC and Third Grade Classes

Spring, 1973

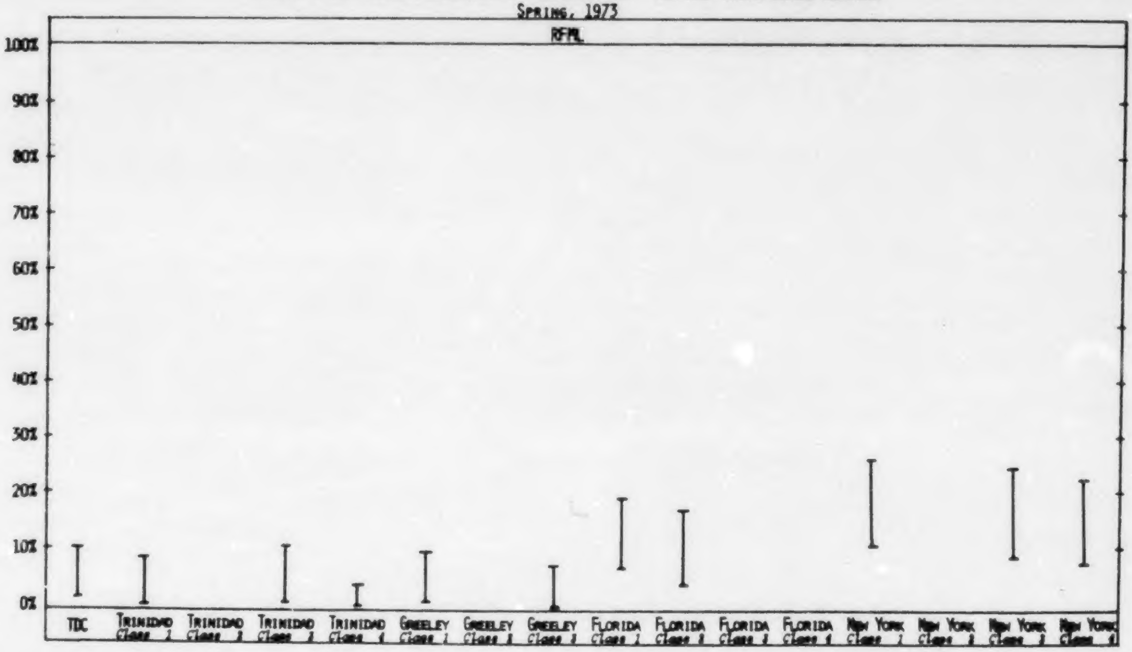


Figure 308
Goodman's Confidence Intervals of Category 15: TDC and Third Grade Classes
Spring, 1973

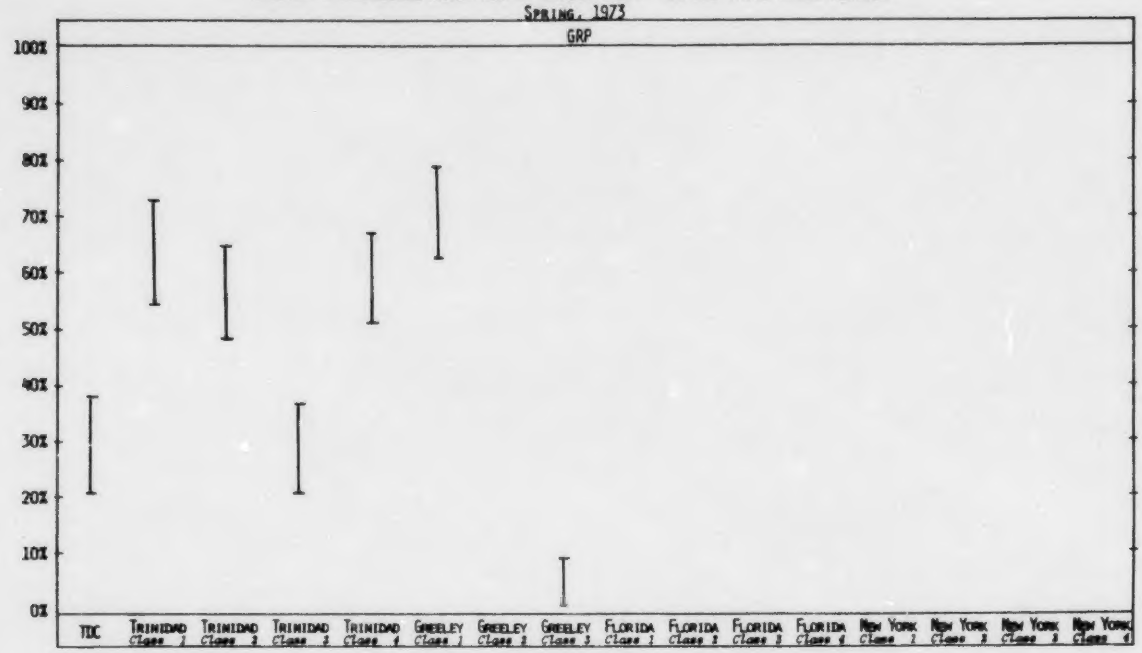


Figure 309
Goodman's Confidence Intervals of Category 15: TDC and Third Grade Classes
Spring, 1973

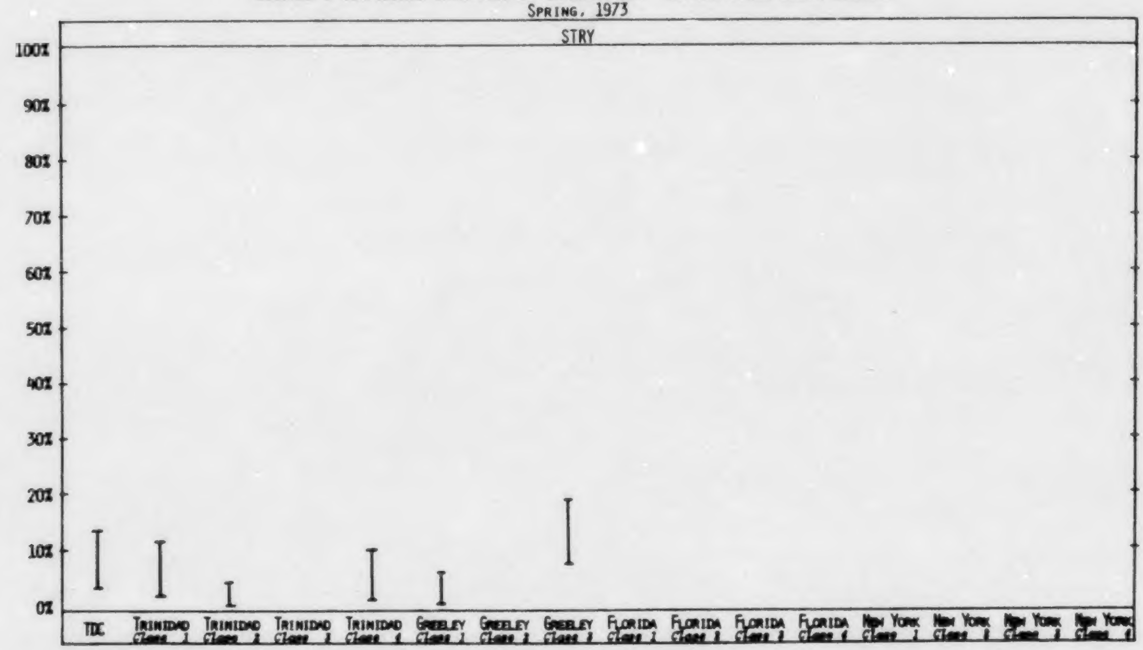


Figure 310

Goodman's Confidence Intervals of Category 15: TDC and Third Grade Classes

Spring, 1973

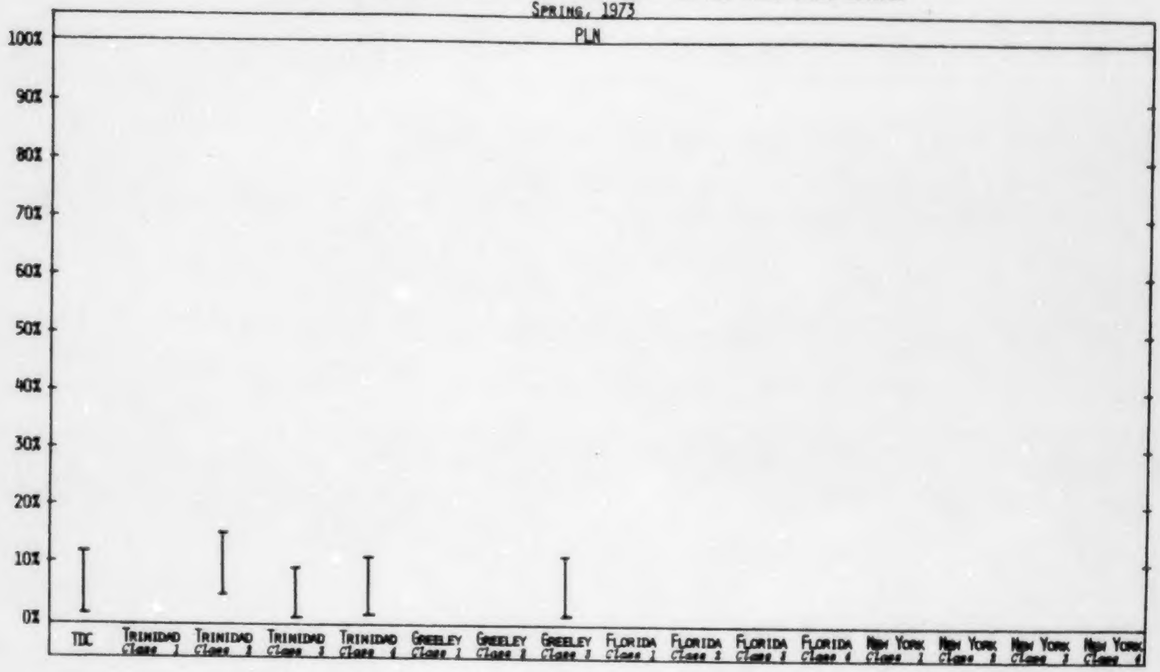


Figure 311

Goodman's Confidence Intervals of Category 15: TDC and Third Grade Classes

Spring, 1973

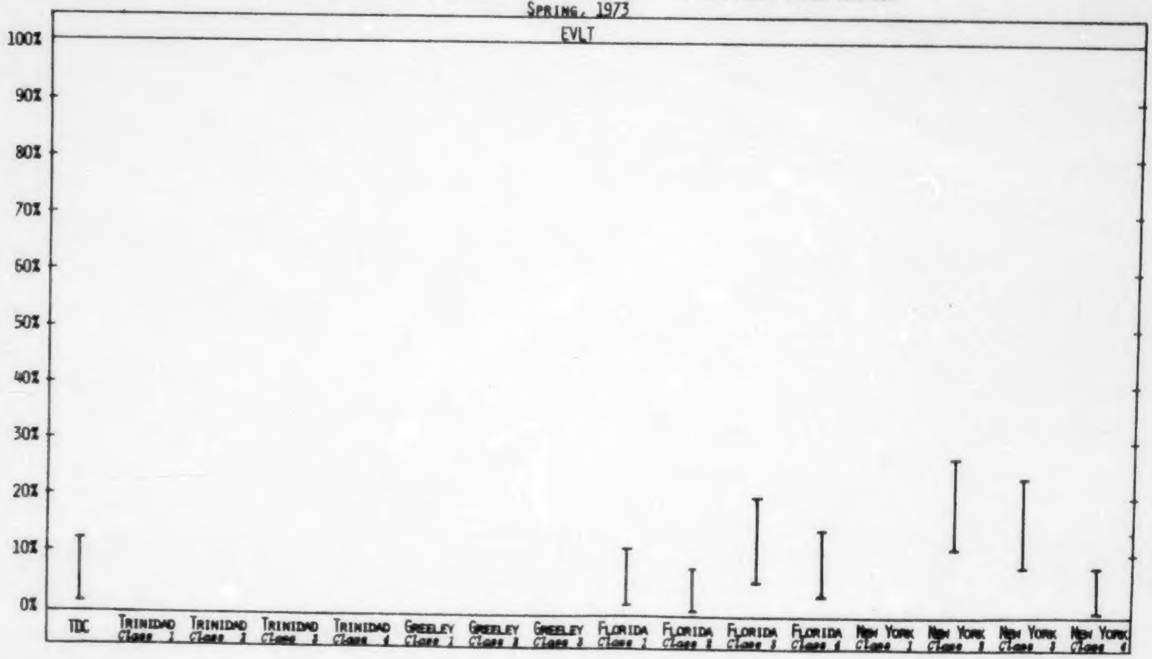
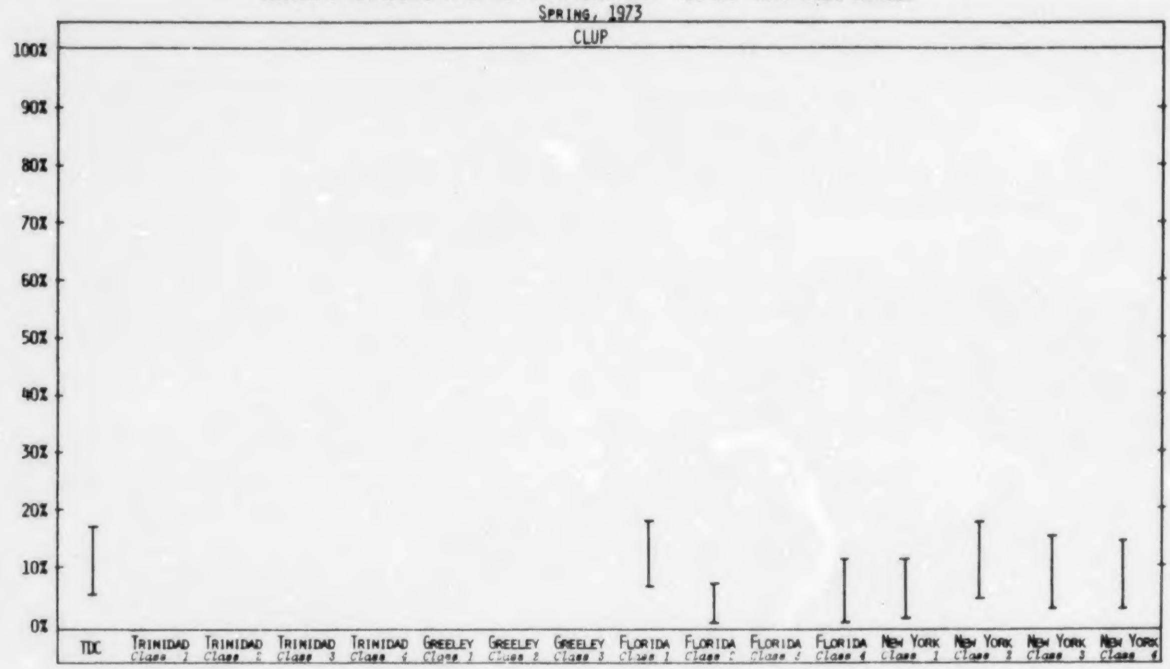


Figure 312
Goodman's Confidence Intervals of Category 15: TDC and Third Grade Classes
Spring, 1973



Spring Comparisons of Interaction Types for the TDC and First Grade Classes

New York and Florida classes varied only slightly from the TDC in the types of classroom interactions and Greeley did not differ at all (see Figures 313-319). Class 4 in New York had more child-adult/child-child/child-material interactions than the TDC and class 2 in Florida had more child-adult/child-material interactions and less child-child/child-material interactions than the TDC.

Each Trinidad class differed from the TDC on at least one type of interaction. Child-adult/child-material interactions occurred more frequently in two classes in Trinidad than in the TDC and child-child/child-material interactions occurred less frequently in these two classes. Child-child interactions occurred less often in two Trinidad classes when compared to the TDC and child-material interactions occurred more often in class 3 in Trinidad than in the TDC.

Figure 313

Goodman's Confidence Intervals of Interaction Types: TDC and First Grade Classes

Spring, 1973

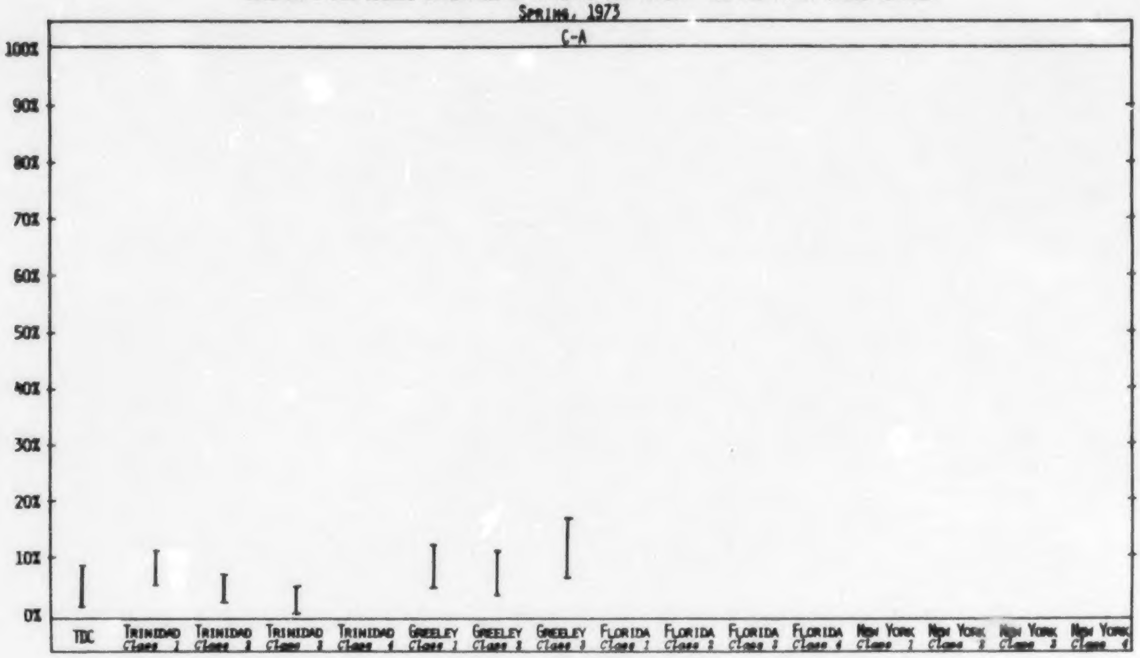


Figure 314

Goodman's Confidence Intervals of Interaction Types: TDC and First Grade Classes

Spring, 1973

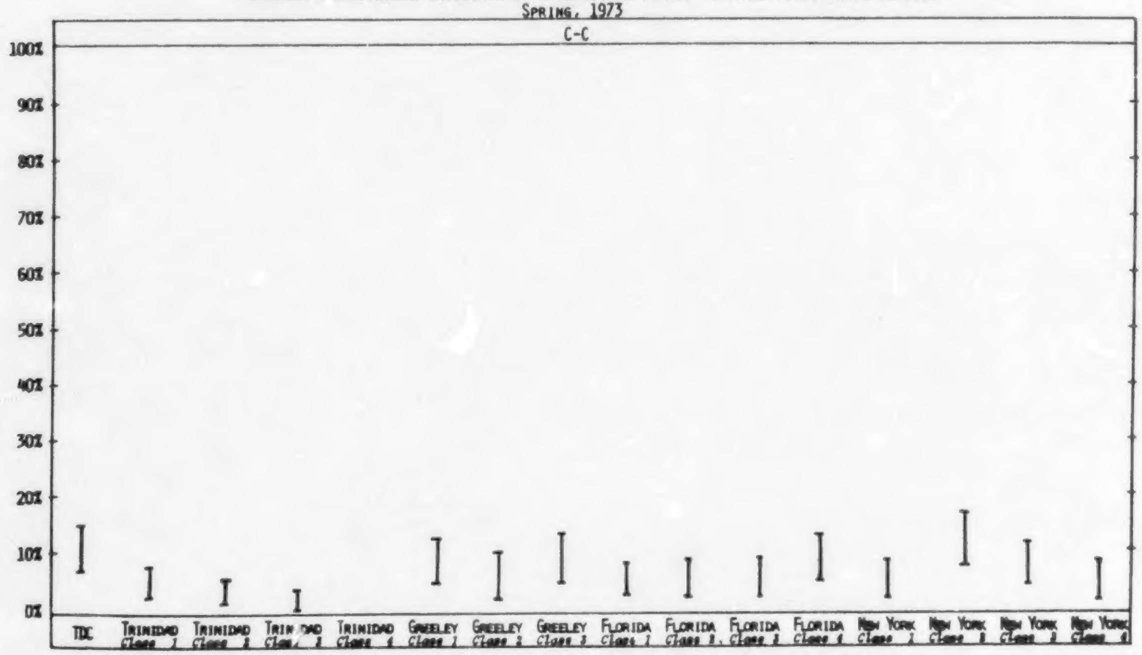


FIGURE 315
GOODMAN'S CONFIDENCE INTERVALS OF INTERACTION TYPES: TDC AND FIRST GRADE CLASSES
SPRING, 1973

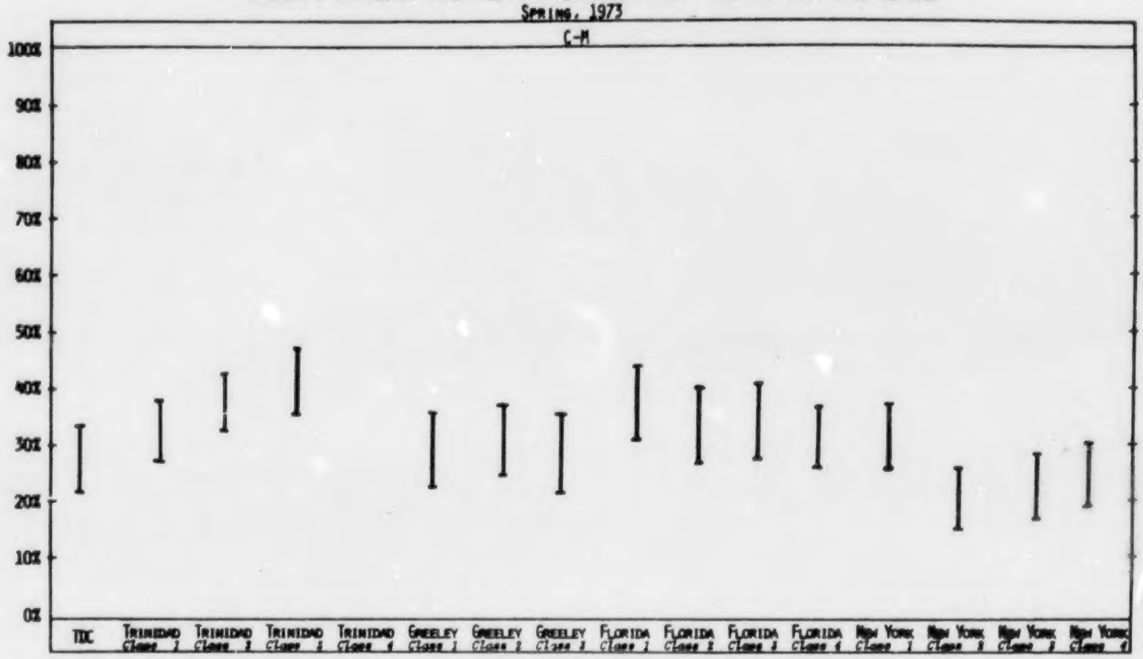


FIGURE 316
GOODMAN'S CONFIDENCE INTERVALS OF INTERACTION TYPES: TDC AND FIRST GRADE CLASSES
SPRING, 1973

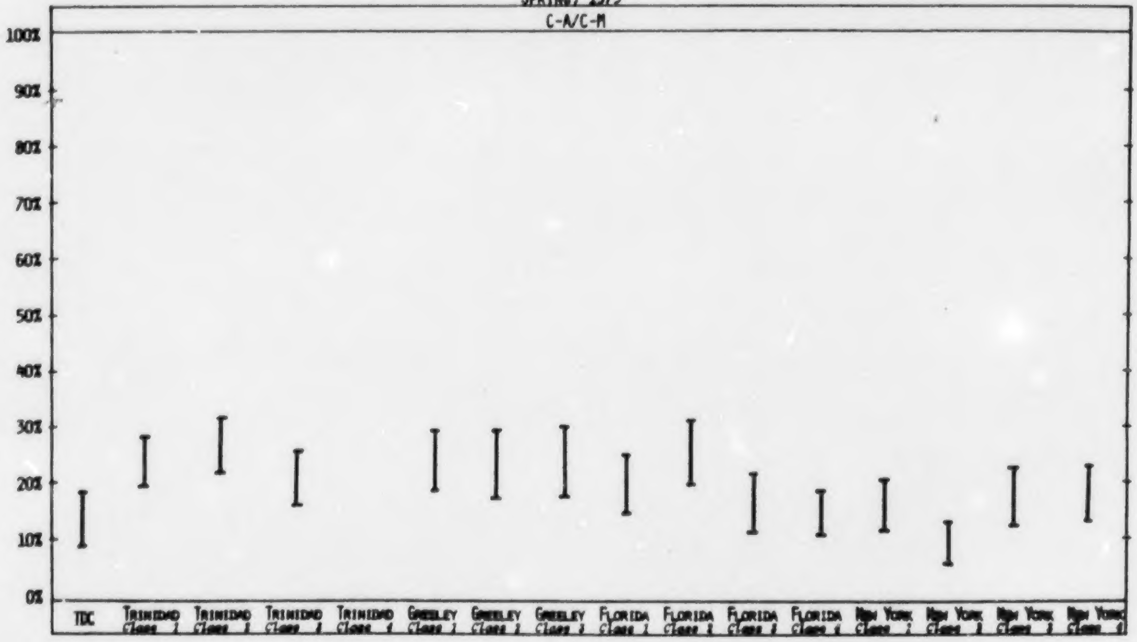


Figure 317

Goodman's Confidence Intervals of Interaction Types: TDC and First Grade Classes

Spring, 1973

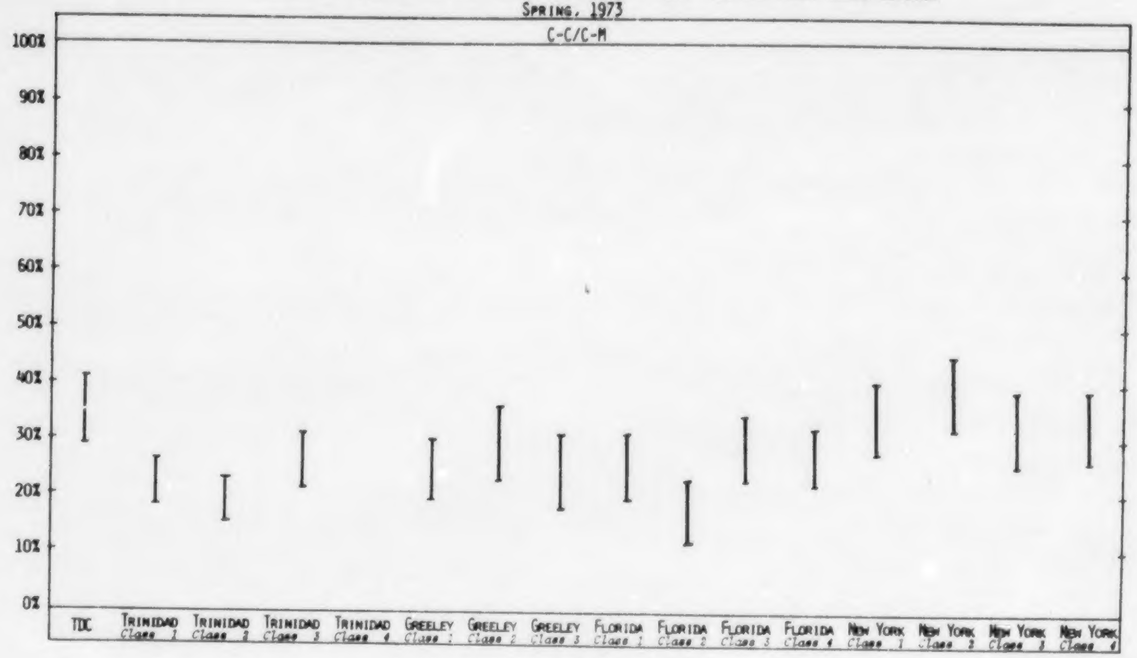


Figure 318

Goodman's Confidence Intervals of Interaction Types: TDC and First Grade Classes

Spring, 1973

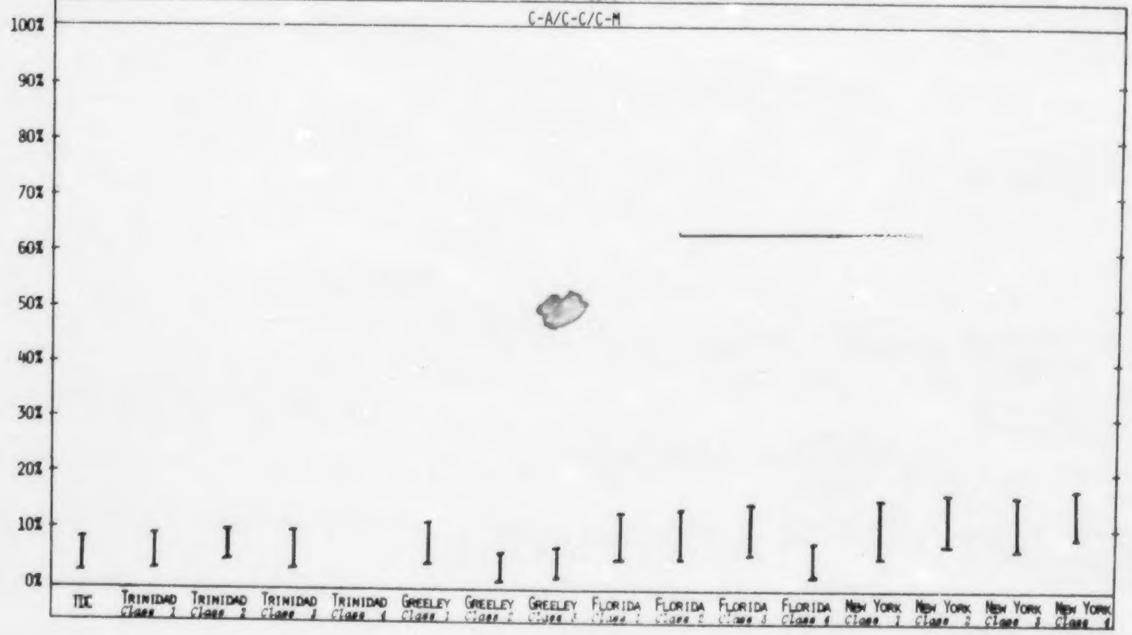
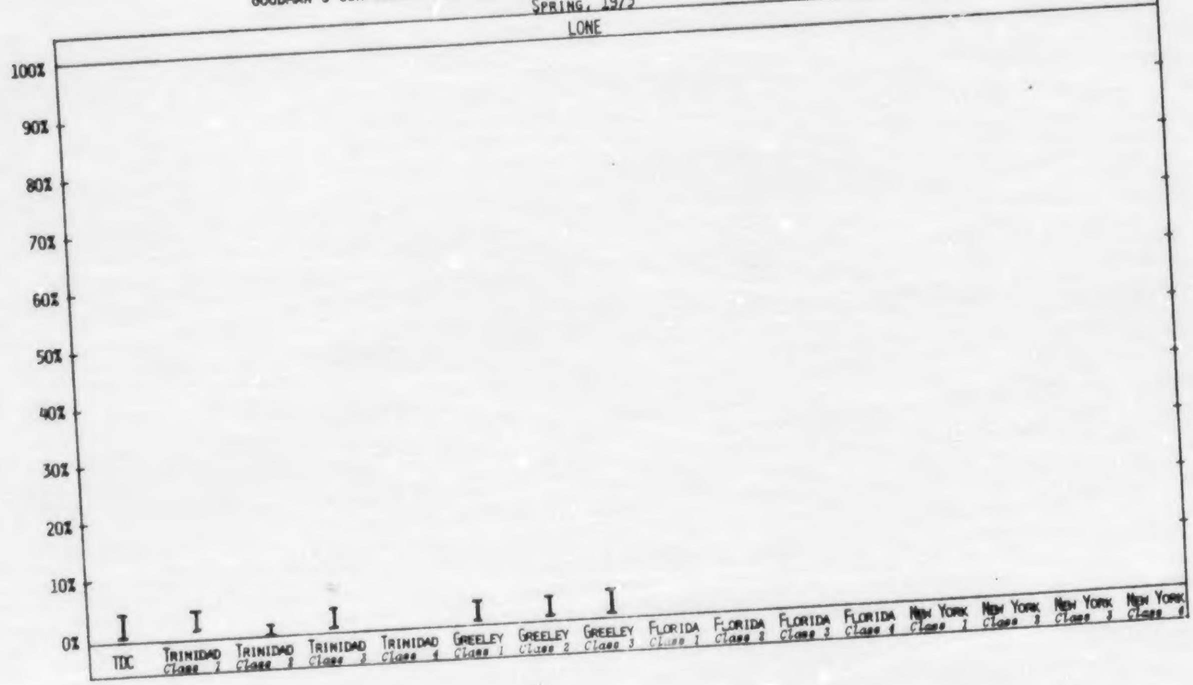


FIGURE 319

GOODMAN'S CONFIDENCE INTERVALS OF INTERACTION TYPES: TDC AND FIRST GRADE CLASSES

SPRING, 1973



Spring Comparisons of Interaction Types for the TDC and Third Grade Classes

Only five of the fourteen third grade classes differed from the TDC in the type of classroom interactions (see Figures 320-326). Child-child interactions occurred less often in three classes than in the TDC and child-material interactions occurred more often in two of the classes than in the TDC. Child-child/child-material interactions and interactions which did not involve adults, children or materials occurred less frequently in classes 2 and 3 in Trinidad than in the TDC and child-adult/child-material interactions more frequently in these classes.

Figure 320

Goodman's Confidence Intervals of Interaction Types: TDC and Third Grade Classes

Spring, 1973

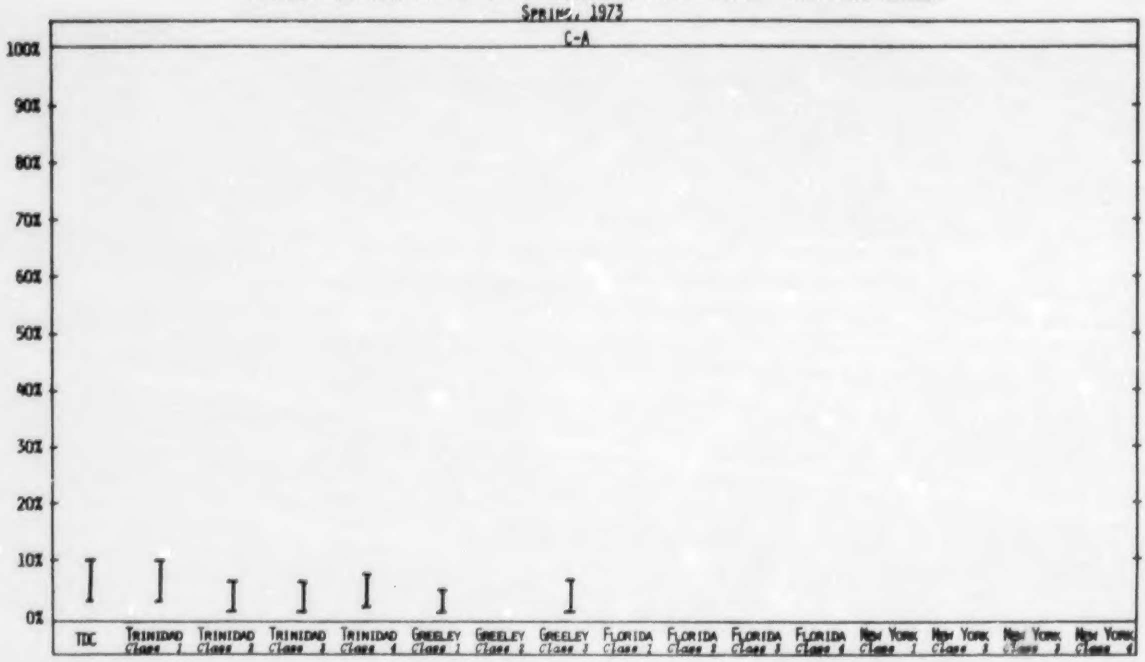


Figure 321

Goodman's Confidence Intervals of Interaction Types: TDC and Third Grade Classes

Spring, 1973

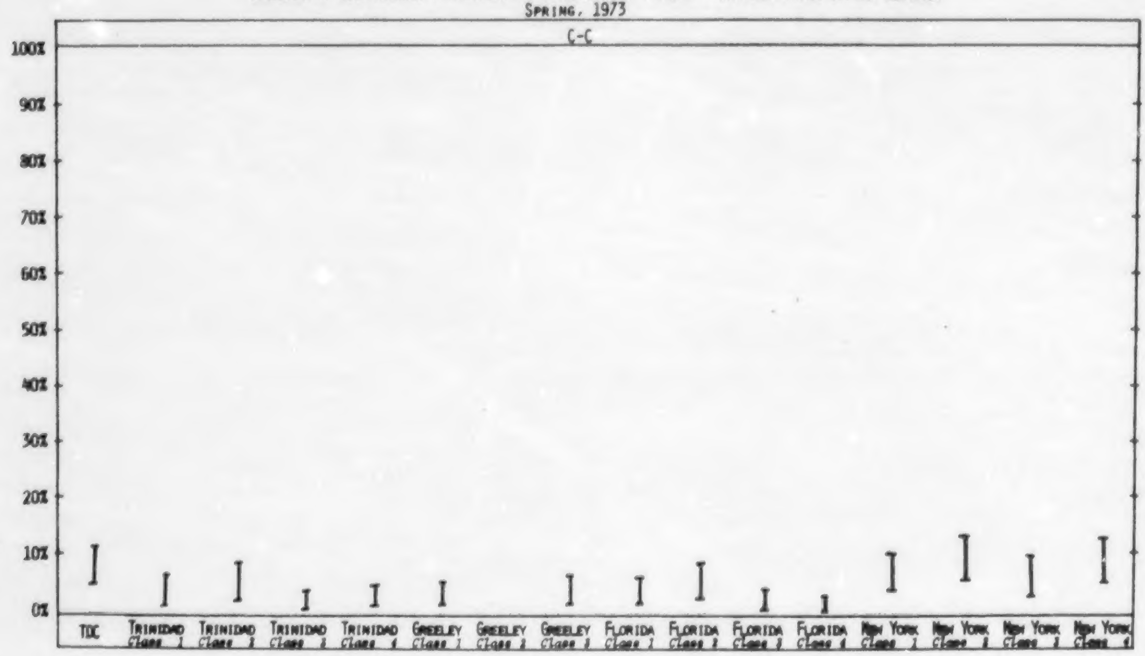


FIGURE 322

GOODMAN'S CONFIDENCE INTERVALS OF INTERACTION TYPES: TDC AND THIRD GRADE CLASSES

SPRING, 1973

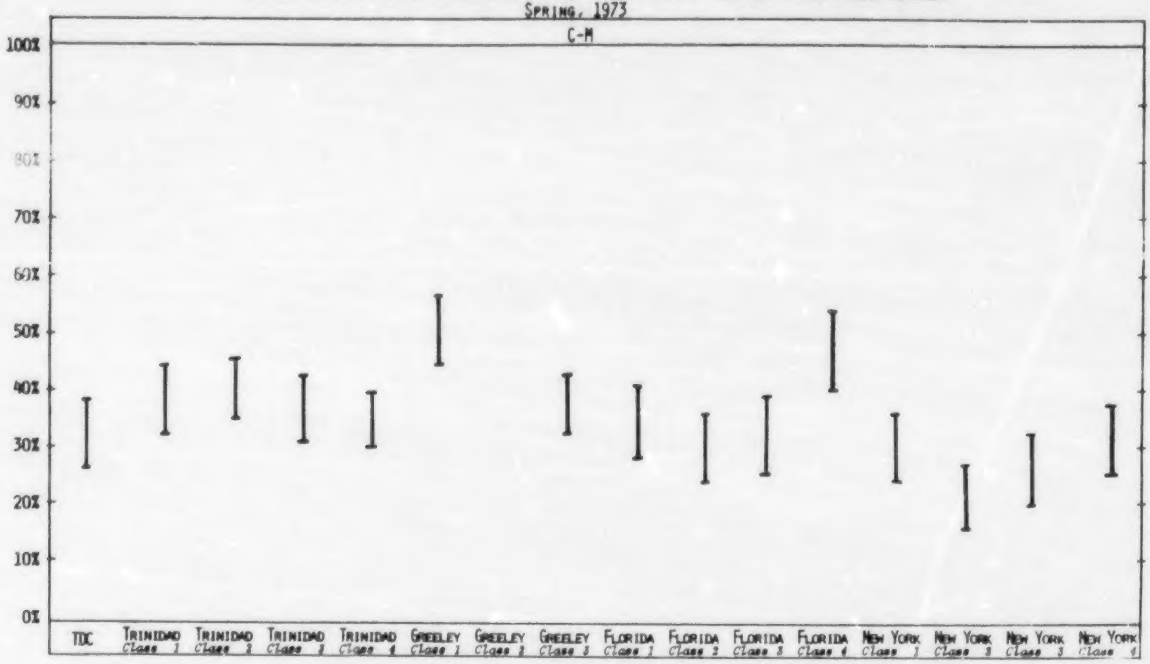


FIGURE 323

GOODMAN'S CONFIDENCE INTERVALS OF INTERACTION TYPES: TDC AND THIRD GRADE CLASSES

SPRING, 1973

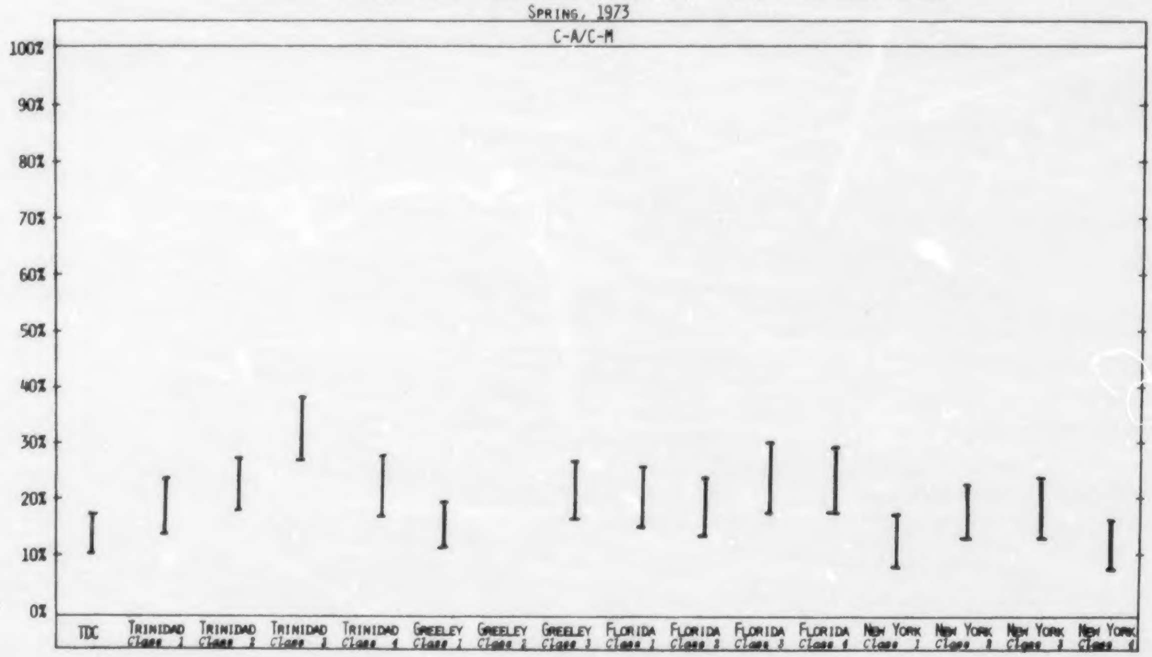


Figure 324

Goodman's Confidence Intervals of Interaction Types: TDC and Third Grade Classes

Spring, 1973

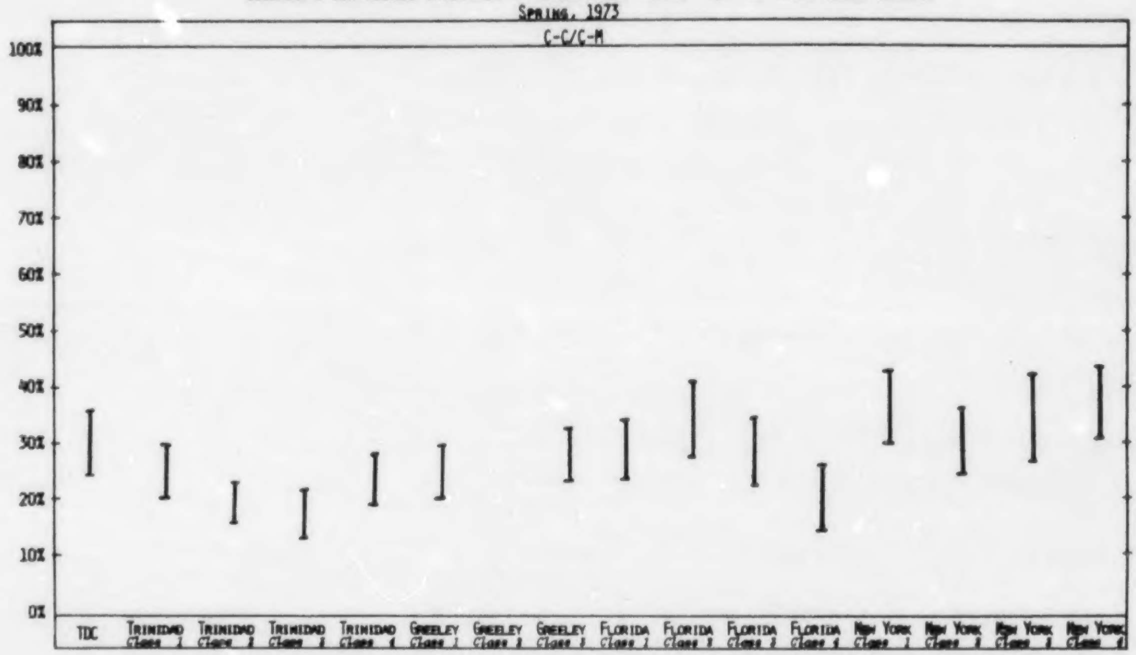

C-C/C-M

Figure 325

Goodman's Confidence Intervals of Interaction Types: TDC and Third Grade Classes

Spring, 1973

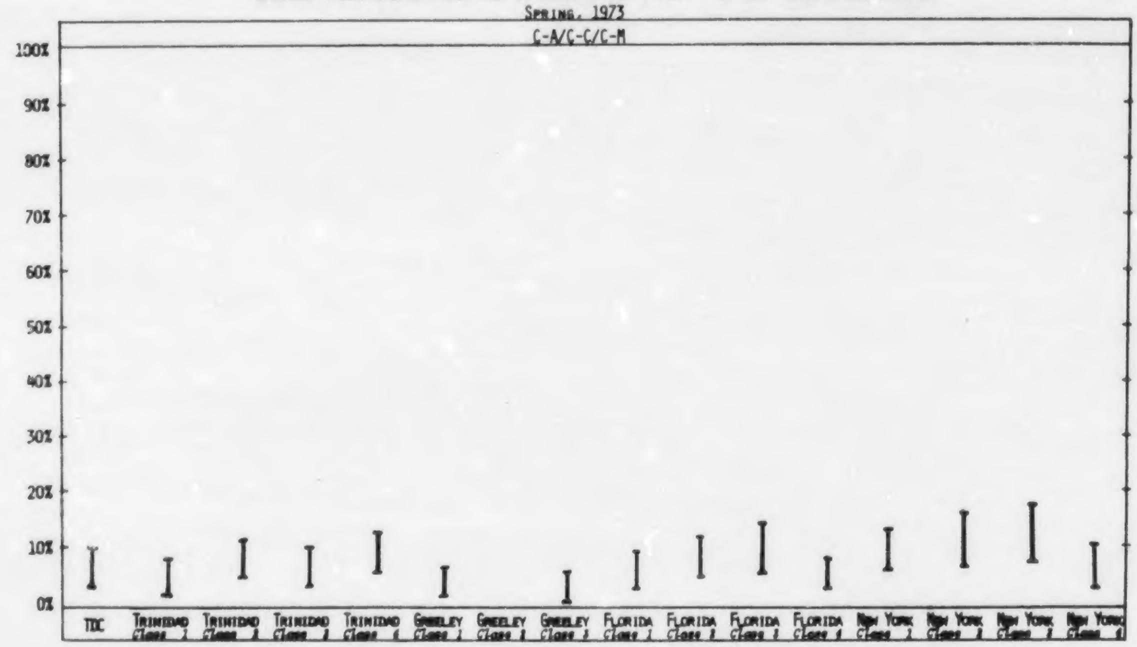
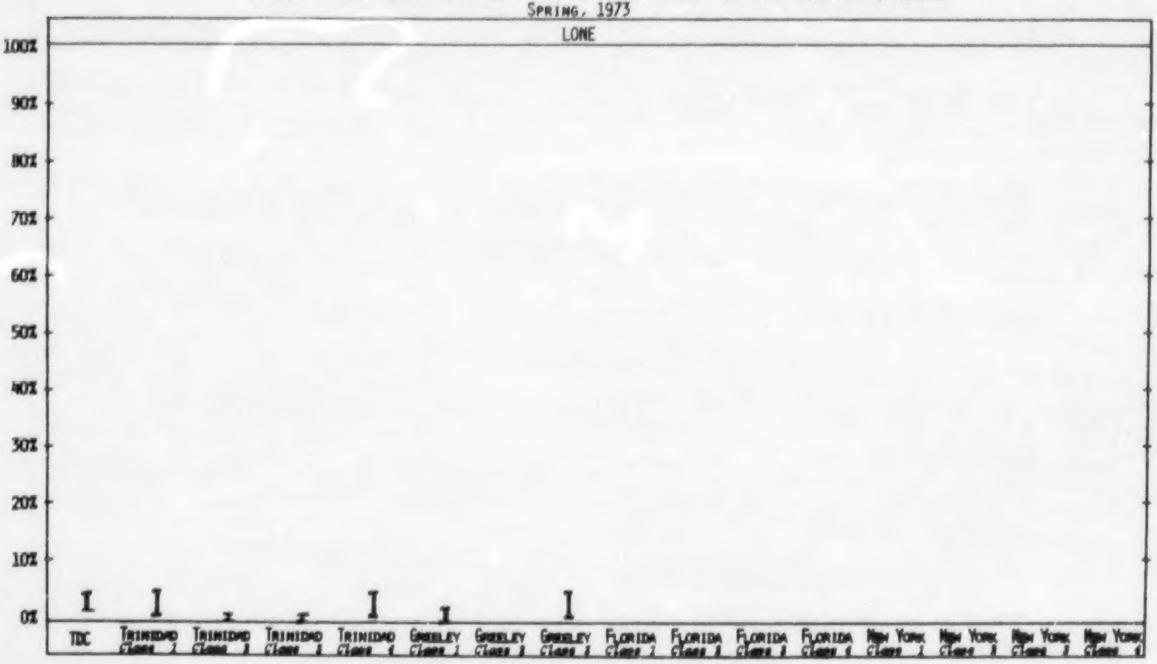

C-A/C-C/C-M

Figure 326
Goodman's Confidence Intervals of Interaction Types: TDC and Third Grade Classes
Spring, 1973



Analysis of Follow Through/Non-Follow Through Comparisons

In order to investigate whether differences between Cognitive Curriculum classrooms and those classrooms not using the Cognitive Curriculum could be detected by the observation instrument, classroom observations were made in four non-Follow Through first and third grade classes in Greeley during the spring data collection period.

Three of the non-Follow Through classes, two first grade and one third grade, employed a team teaching approach with the children rotating at various intervals among three teachers. Each observer stayed with a class of children for the entire day following them as they rotated, noting the change in teachers. The fourth class, a third grade, was self-contained.

Comparisons were made between the two non-Follow Through first grade classes and between the two non-Follow Through third grade classes to assess the variability among non-Follow Through classes. The non-Follow Through classes were then combined by grade as were the Follow Through classes at this site for Follow Through/non-Follow Through comparisons.

The comparisons made between the first grade non-Follow Through classes and between the third grade non-Follow Through classes are shown in Figures 327-342. Comparisons of the two non-Follow Through first grade classes indicated that class 1 children received more individual attention from adults, were more frequently involved in writing activities, were more often in groups containing six to ten students and were more often involved in child-child/child-material interactions. The children in class 2 were in large groups, used picture materials more often, were more verbal in their interactions and were more frequently involved in child-adult interactions. The two third grade non-Follow Through classes also varied from each other. Children in class 2 were more often involved in reading and writing activities, used materials more often in their interactions with peers, and were more frequently involved in child-material interactions. Students in class 1 were more verbal, used picture and object materials more often and interacted with adults only or with children only more frequently than class 1 children.

Figure 327

Goodman's Confidence Intervals of Category 2 Items for Non-Follow Through First Grade Classes

Greeley, Spring 1973

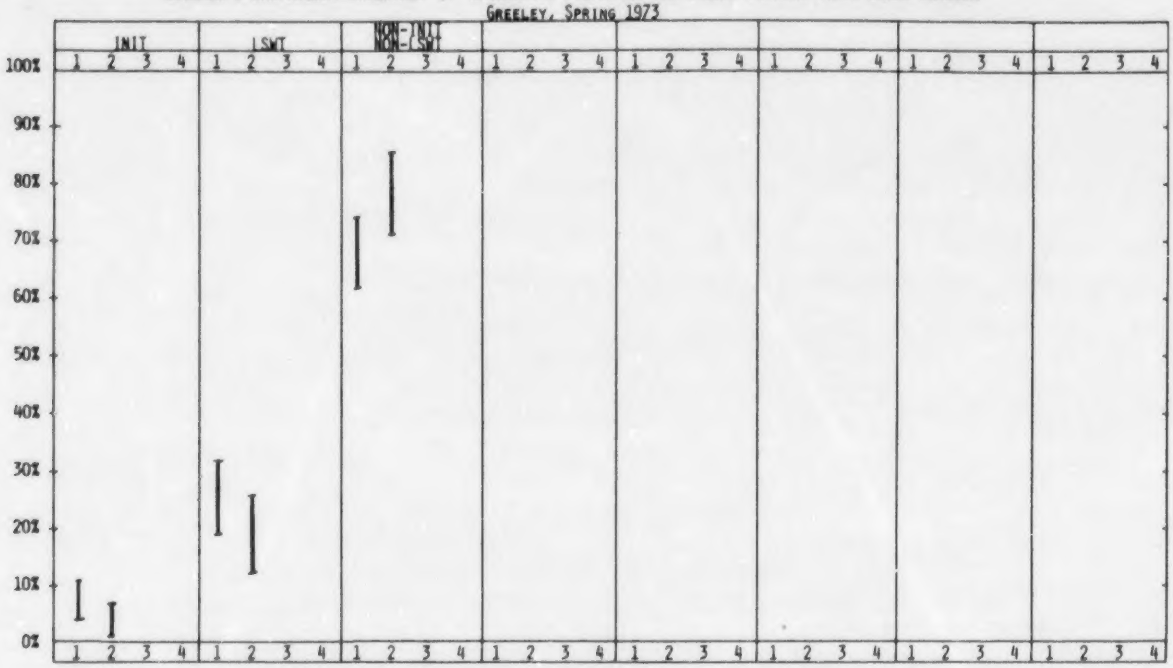


Figure 328

Goodman's Confidence Intervals of Category 4 Items for Non-Follow Through First Grade Classes

Greeley, Spring 1973

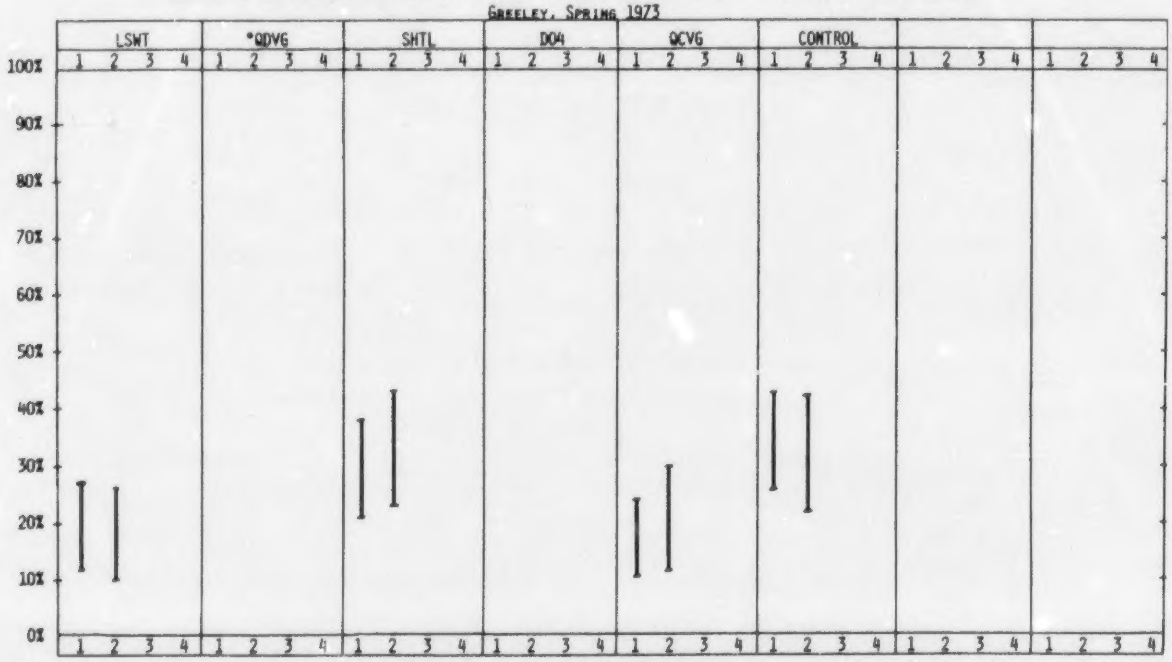


Figure 329

Goodman's Confidence Intervals of Category 5 Items for Non-Follow Through First Grade Classes

Greeley, Spring 1973

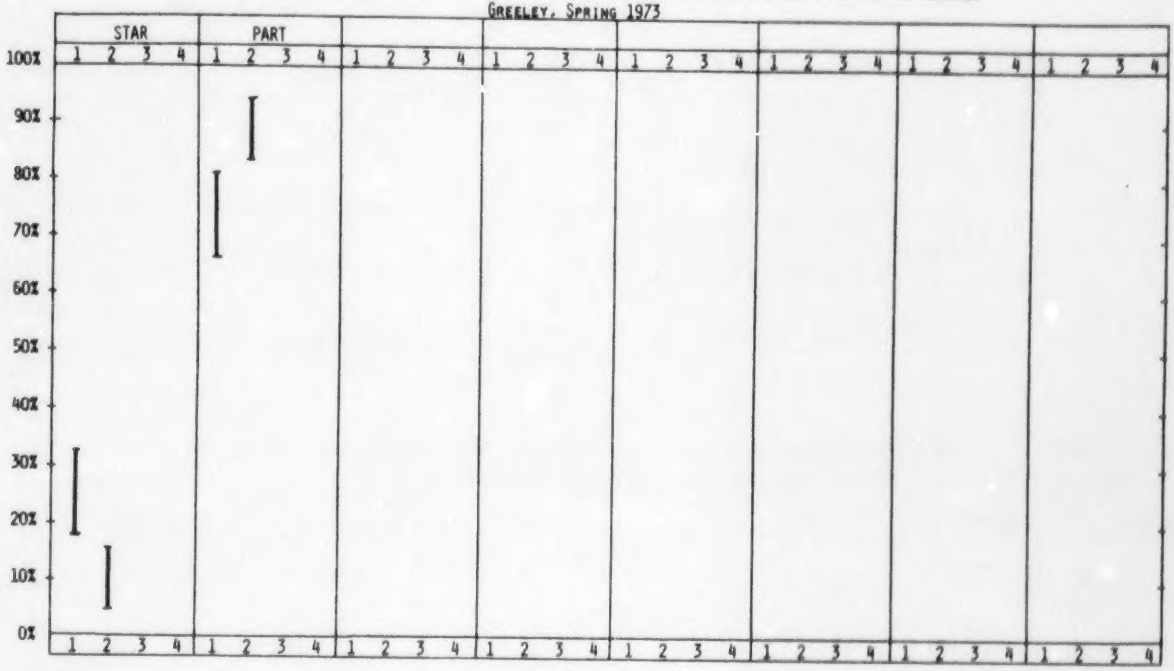


Figure 330

Goodman's Confidence Intervals of Category 6 Items for Non-Follow Through First Grade Classes

Greeley, Spring 1973

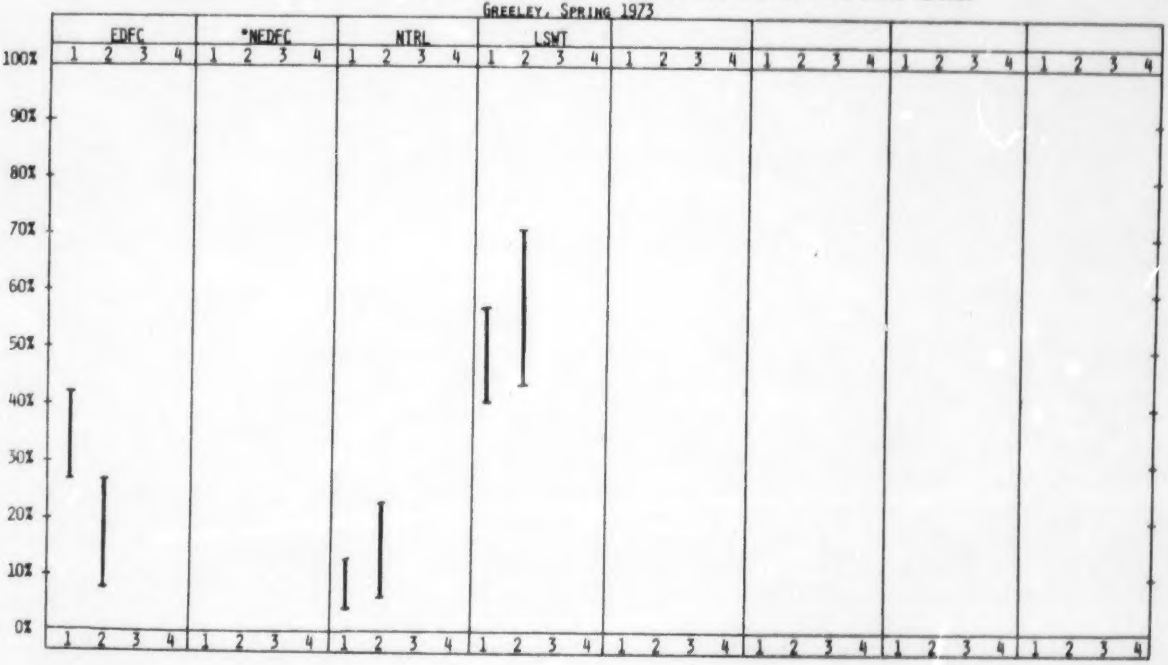


Figure 331
Goodman's Confidence Intervals of Category 7 Items for Non-Follow Through First Grade Classes
Greeley, Spring 1973

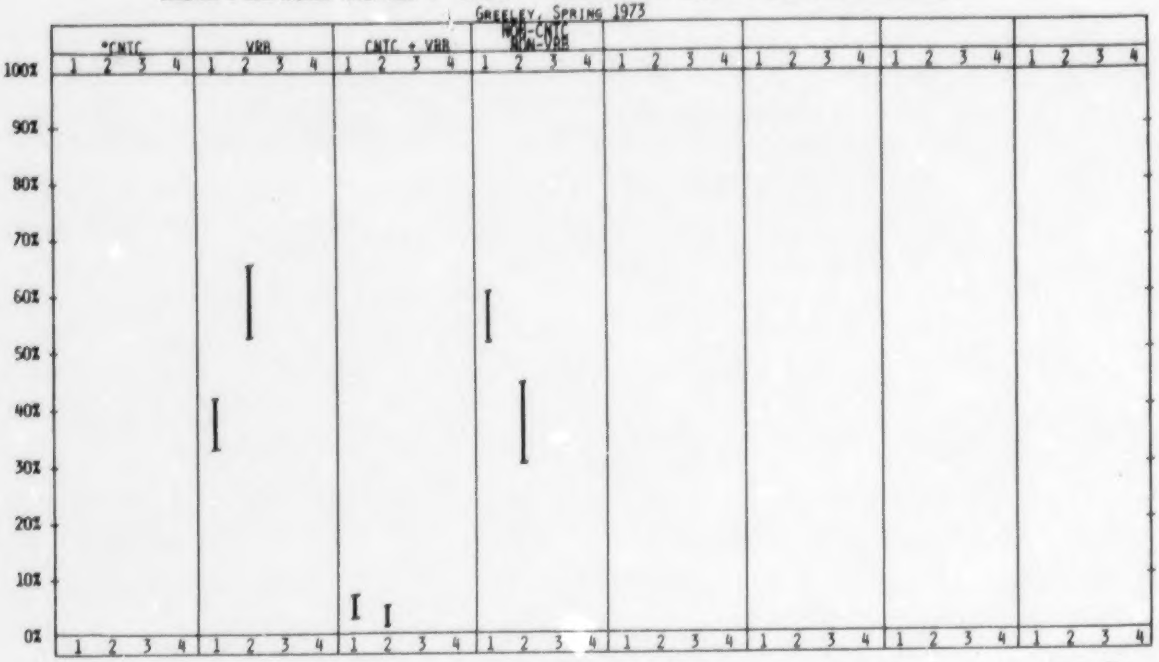


Figure 332
Goodman's Confidence Intervals of Category 9 Items for Non-Follow Through First Grade Classes
Greeley, Spring 1973

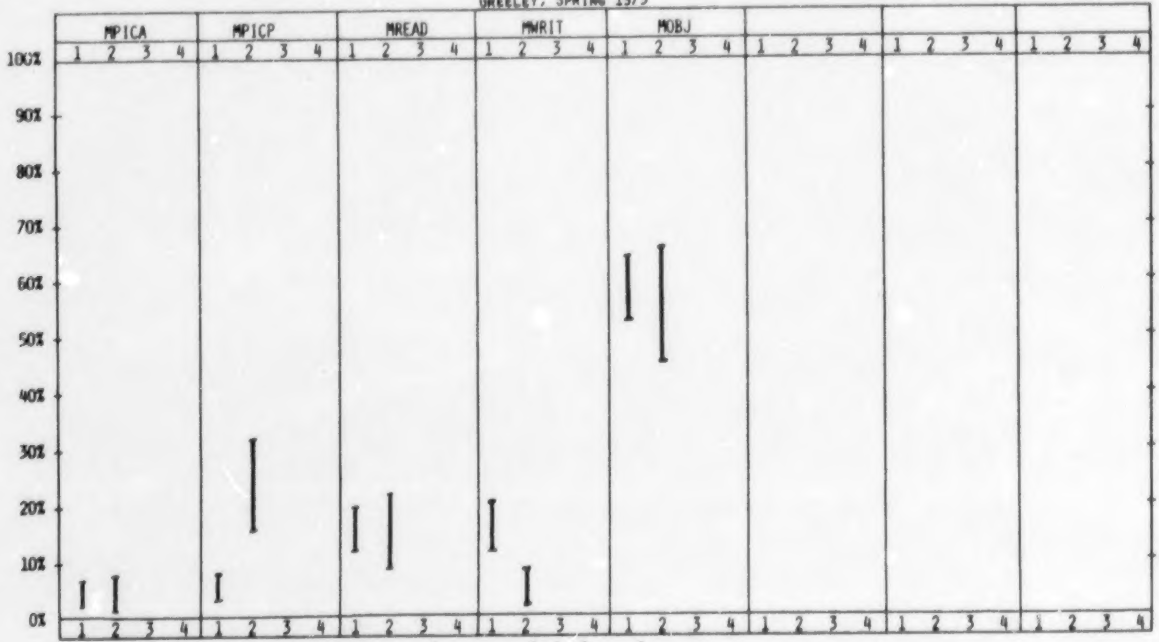


Figure 333
Goodman's Confidence Intervals of Category 12 Items for Non-Follow Through First Grade Classes
Greeley, Spring 1973

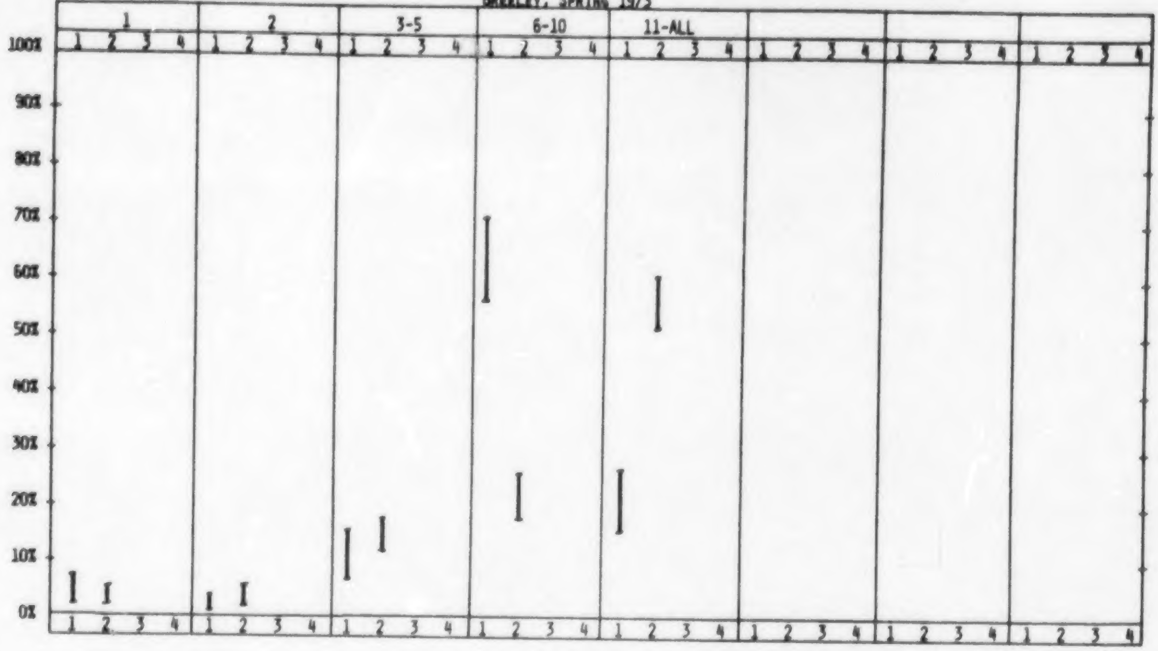


Figure 334
Goodman's Confidence Intervals of Interaction Types for Non-Follow Through First Grade Classes
Greeley, Spring 1973

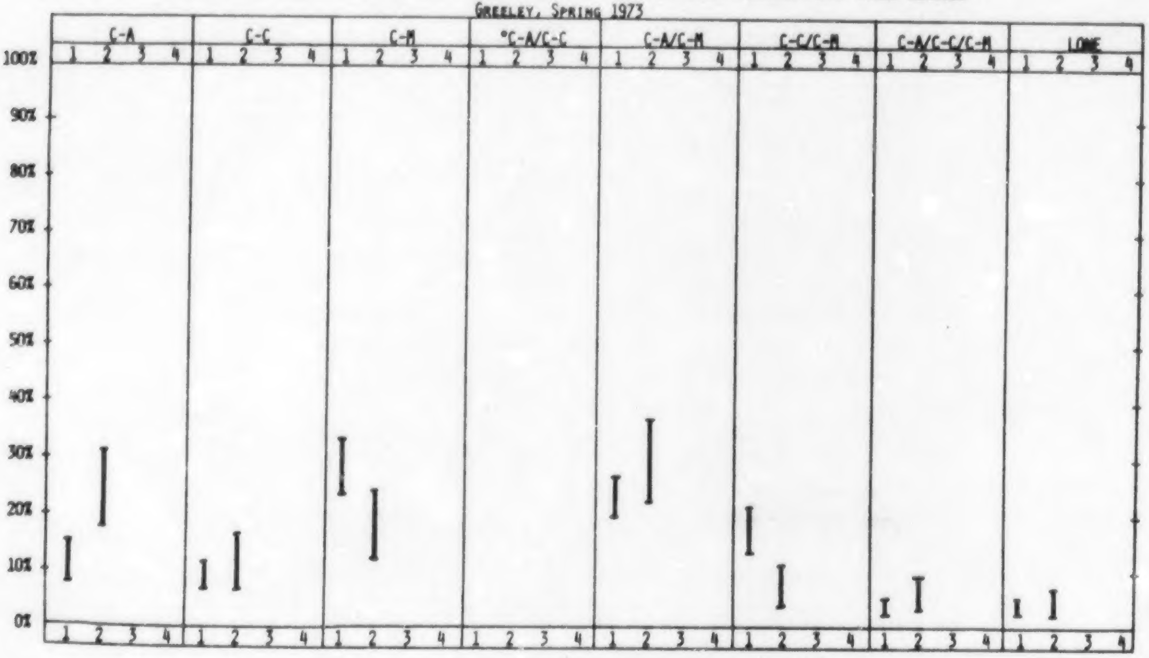


Figure 335

Goodman's Confidence Intervals of Category 2 Items for Non-Follow Through Third Grade Classes

Greeley, Spring 1973

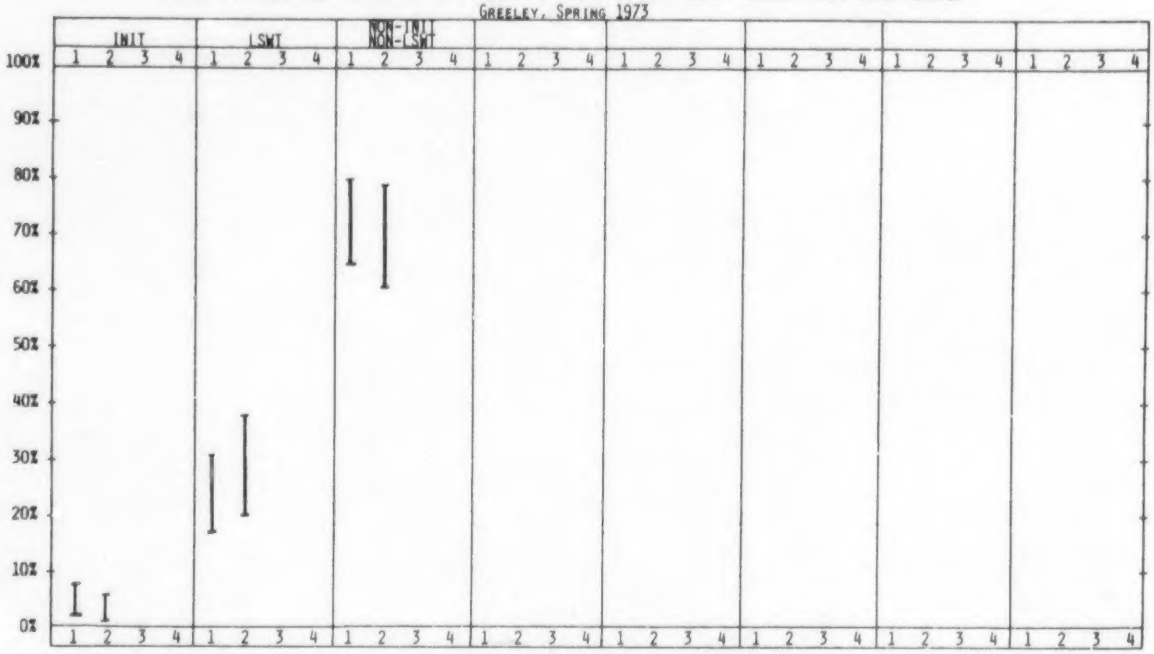


Figure 336

Goodman's Confidence Intervals of Category 4 Items for Non-Follow Through Third Grade Classes

Greeley, Spring 1973

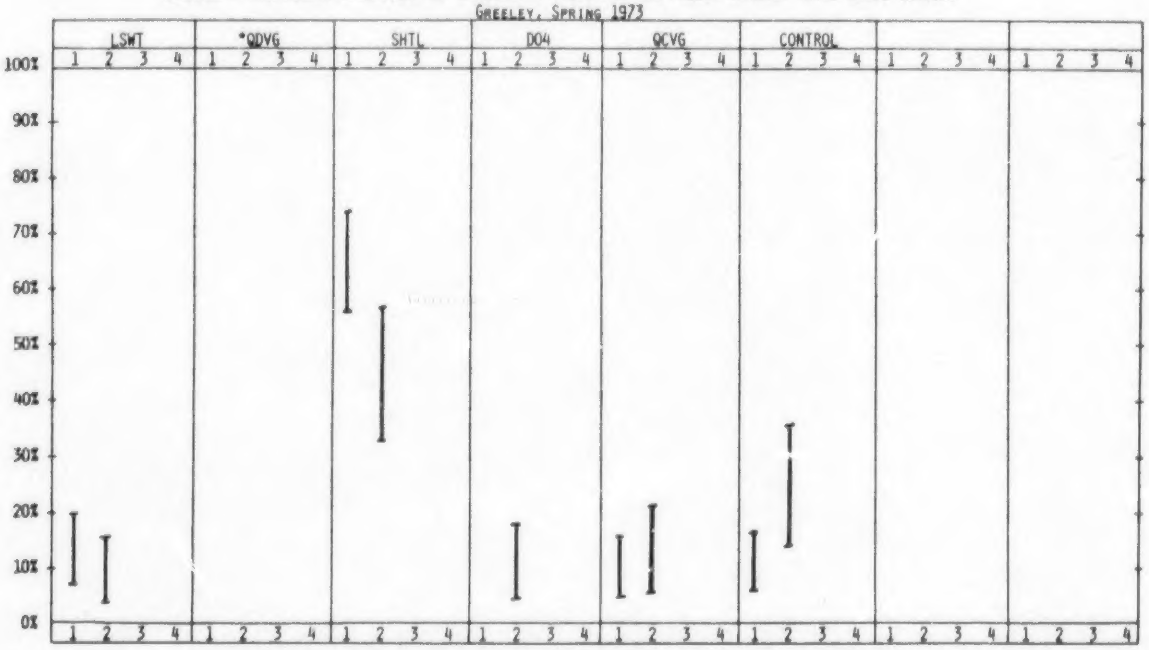


FIGURE 337
GOODMAN'S CONFIDENCE INTERVALS OF CATEGORY 5 ITEMS FOR NON-FOLLOW THROUGH THIRD GRADE CLASSES
GREELEY, SPRING 1973

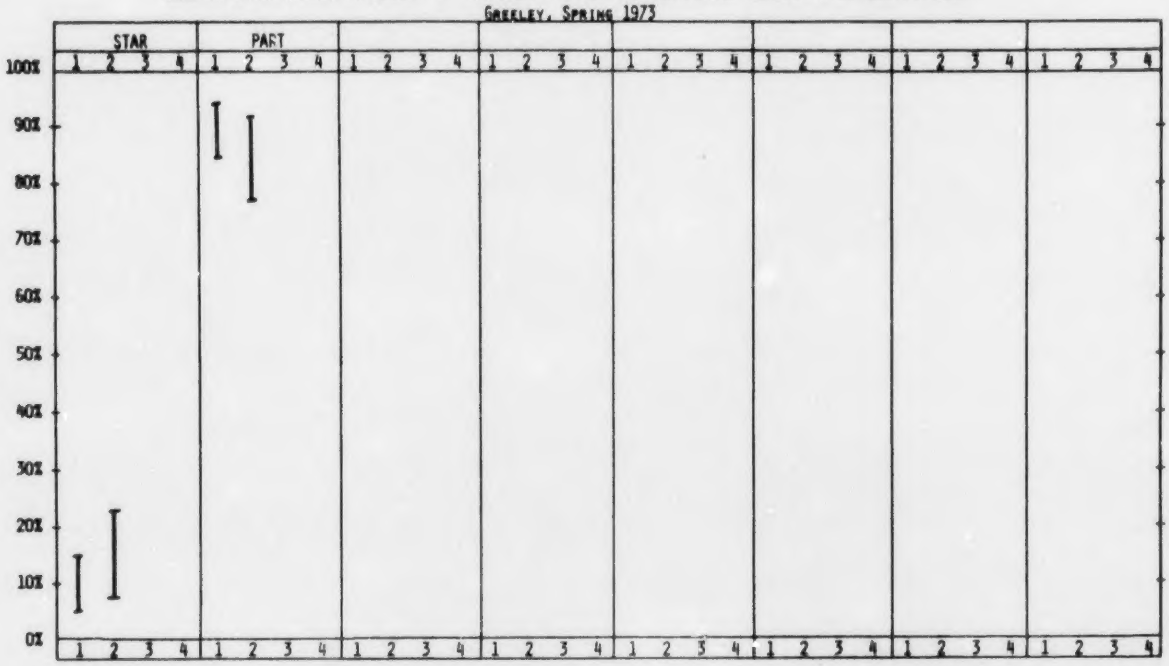
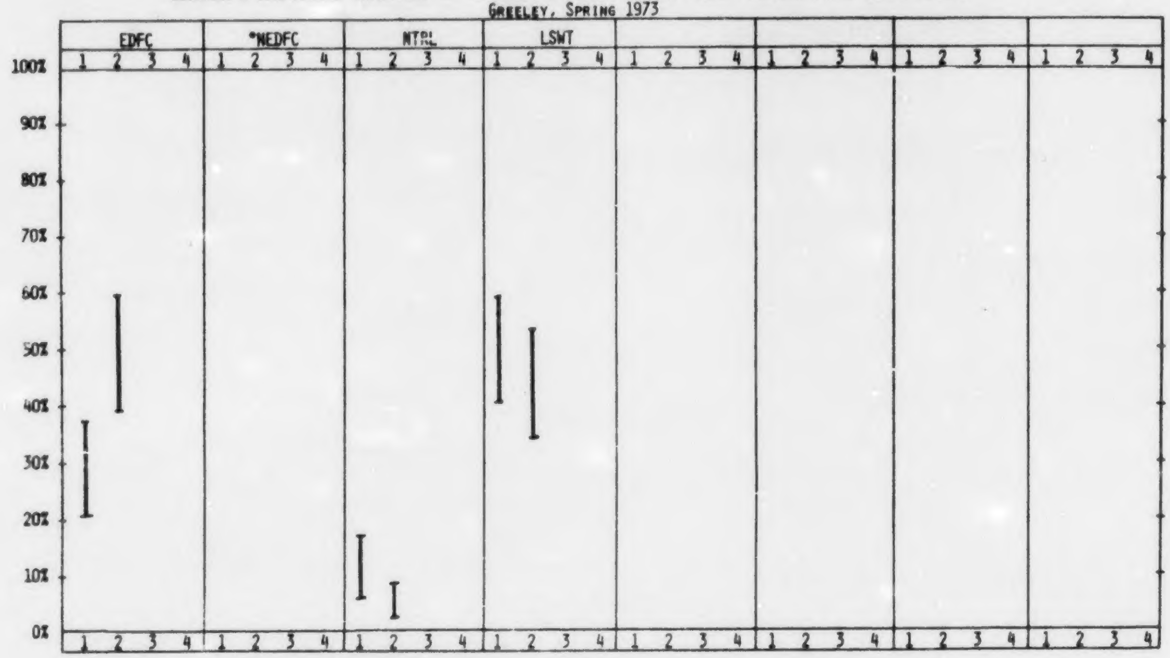


FIGURE 338
GOODMAN'S CONFIDENCE INTERVALS OF CATEGORY 6 ITEMS FOR NON-FOLLOW THROUGH THIRD GRADE CLASSES
GREELEY, SPRING 1973



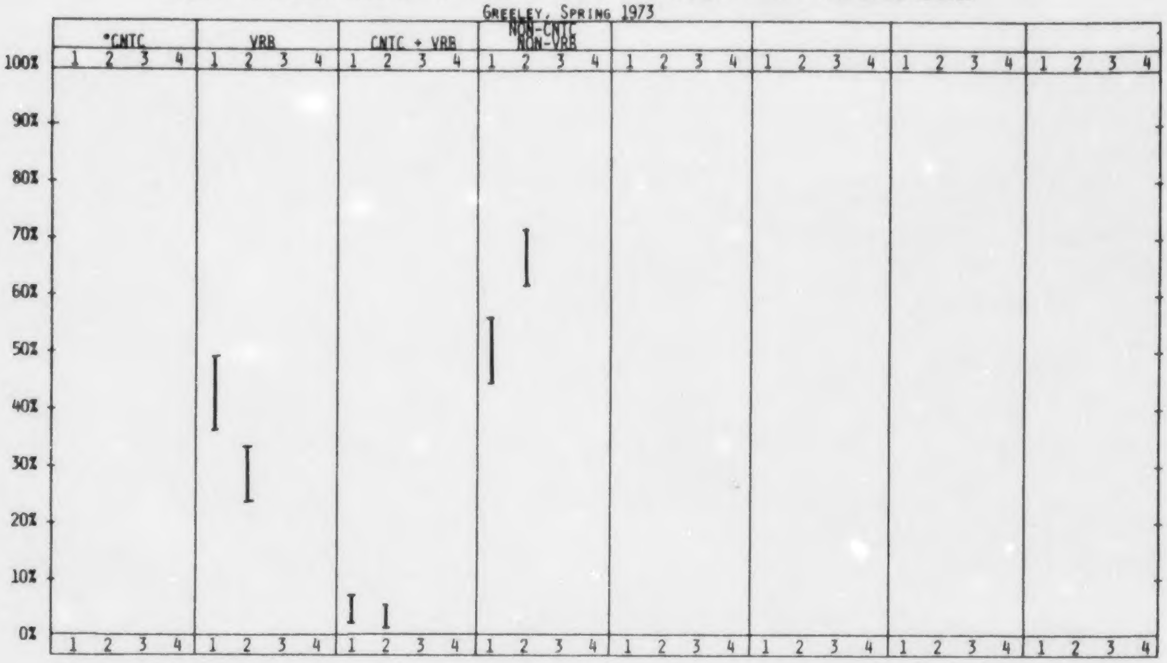


Figure 339
Goodman's Confidence Intervals of Category 9 Items for Non-Follow Through Third Grade Classes
Greeley, Spring 1973

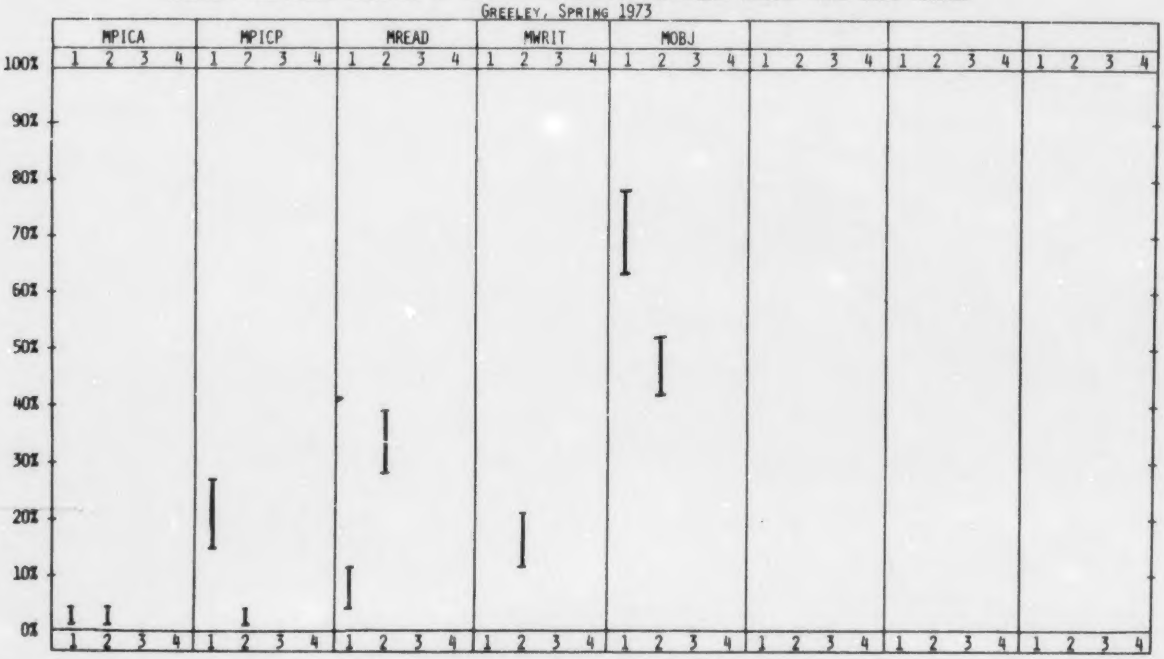


Figure 340
Goodman's Confidence Intervals of Category 9 Items for Non-Follow Through Third Grade Classes
Greeley, Spring 1973

FIGURE 341
GOODMAN'S CONFIDENCE INTERVALS OF CATEGORY 12 ITEMS FOR NON-FOLLOW THROUGH THIRD GRADE CLASSES
GREELEY, SPRING 1973

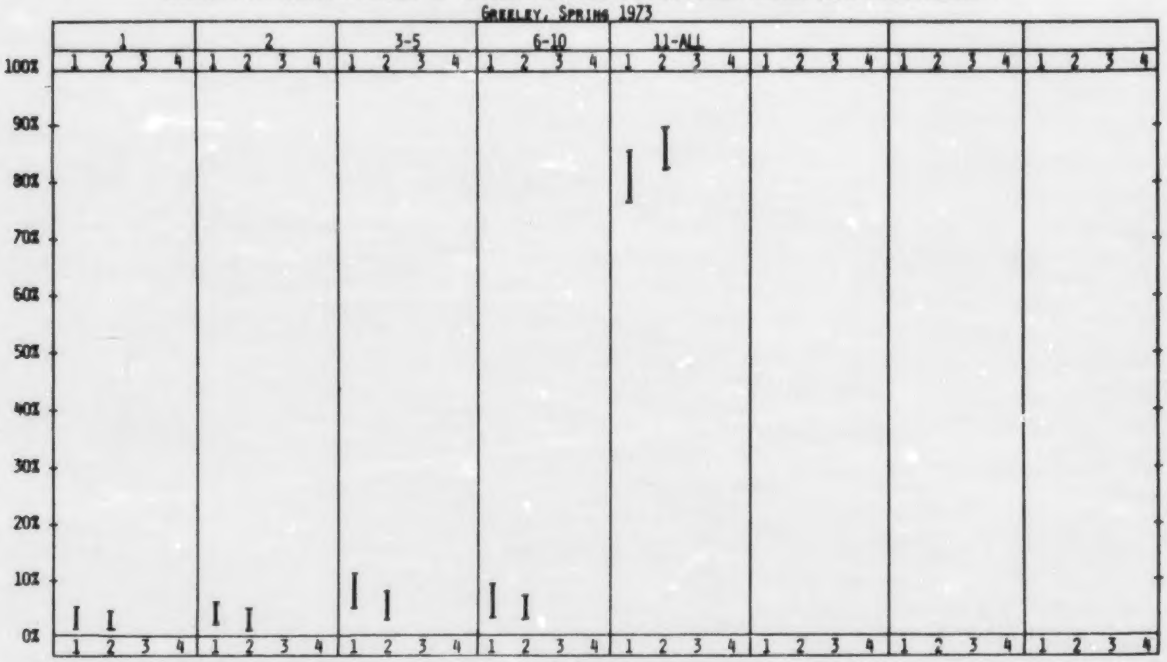
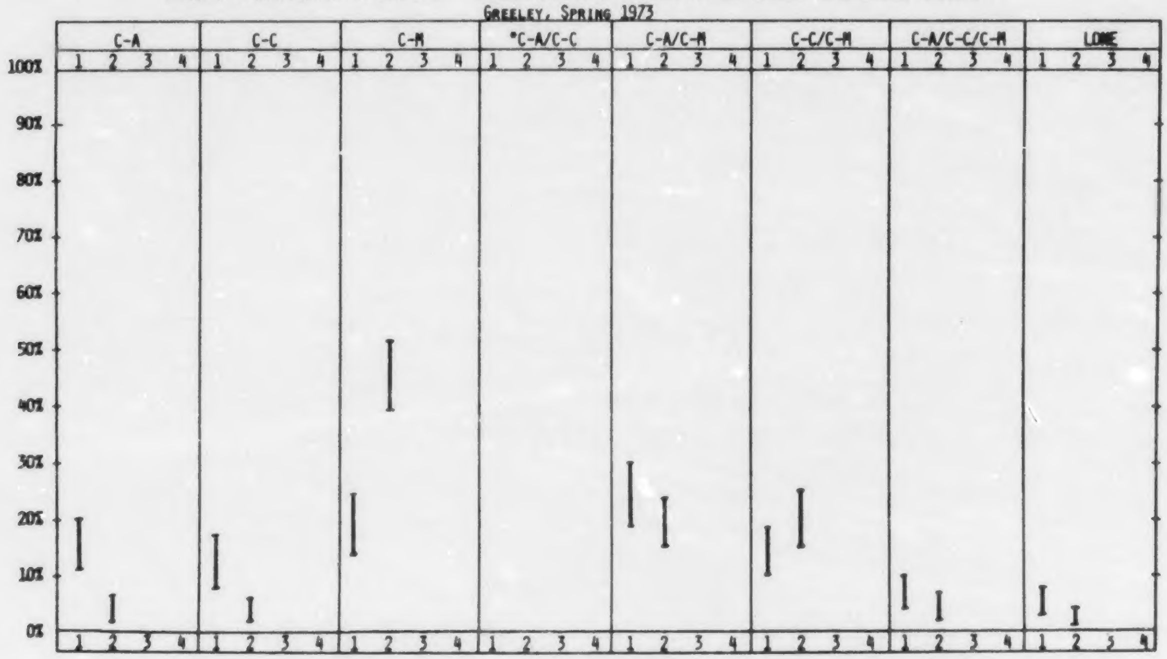


FIGURE 342
GOODMAN'S CONFIDENCE INTERVALS OF INTERACTION TYPES FOR NON-FOLLOW THROUGH THIRD GRADE CLASSES
GREELEY, SPRING 1973



Comparison of Follow Through/Non-Follow Through First Grade Classes

Follow Through/non-Follow Through comparisons of the first grades are reported in Figures 343-350. First grade Follow Through students, compared to non-Follow Through first graders, received more individual attention from adults, used materials in their interactions with peers more often, were more often in small groups (3 to 10), and were more often involved in child-child/child-material interactions. The non-Follow Through children were more often listening or watching other children during child-child interactions, were more often involved in writing activities, were more often in large groups (10+) and were more often involved in child-adult interactions.

Figure 343

Goodman's Confidence Intervals of Category 2 Items for Follow Through and Non-Follow Through First Grade Classes

Greeley, Spring 1973

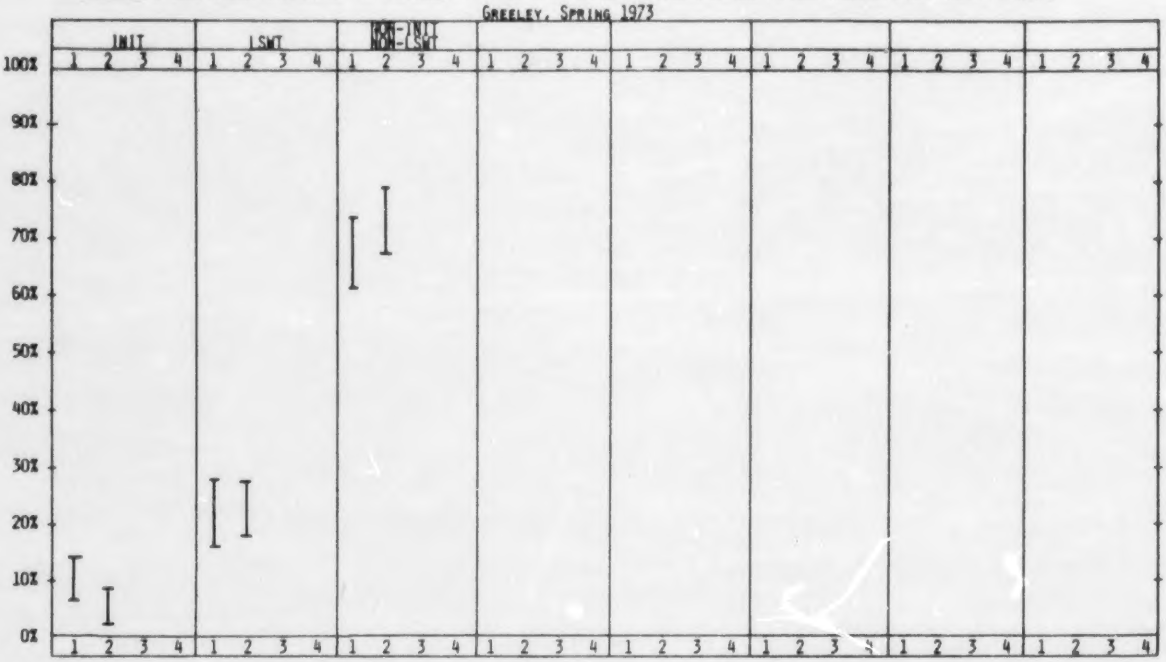


Figure 344

Goodman's Confidence Intervals of Category 4 Items for Follow Through and Non-Follow Through First Grade Classes

Greeley, Spring 1973

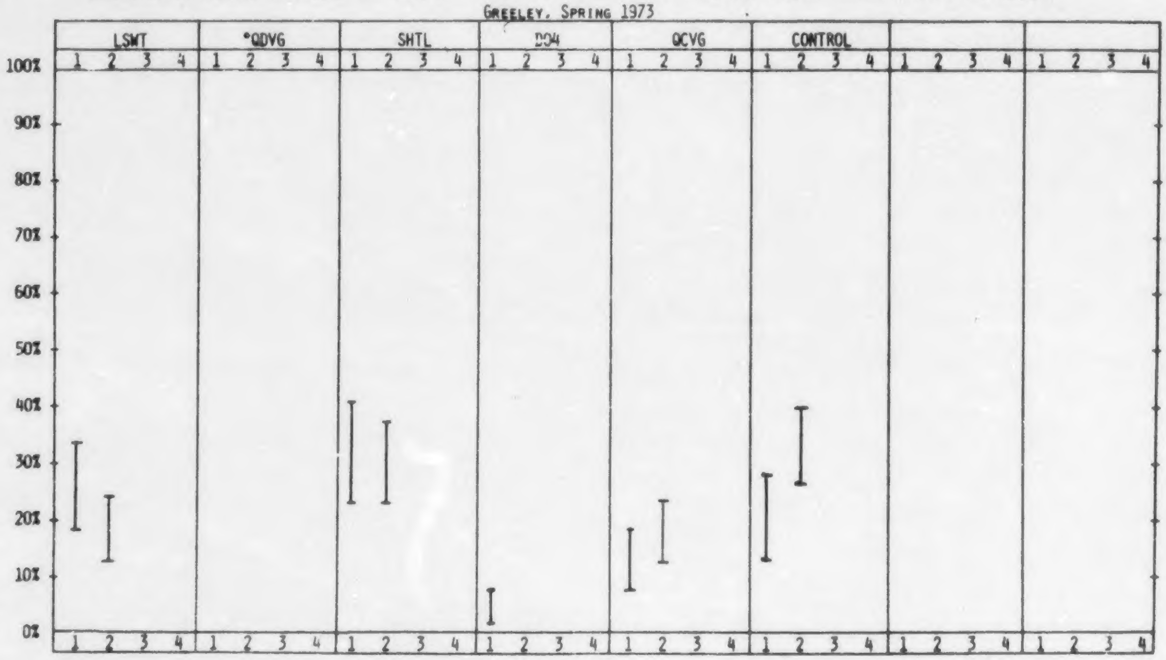


Figure 345
Goodman's Confidence Intervals of Category 5 Items for Follow Through and Non-Follow Through First Grade Classes
Greeley, Spring 1973

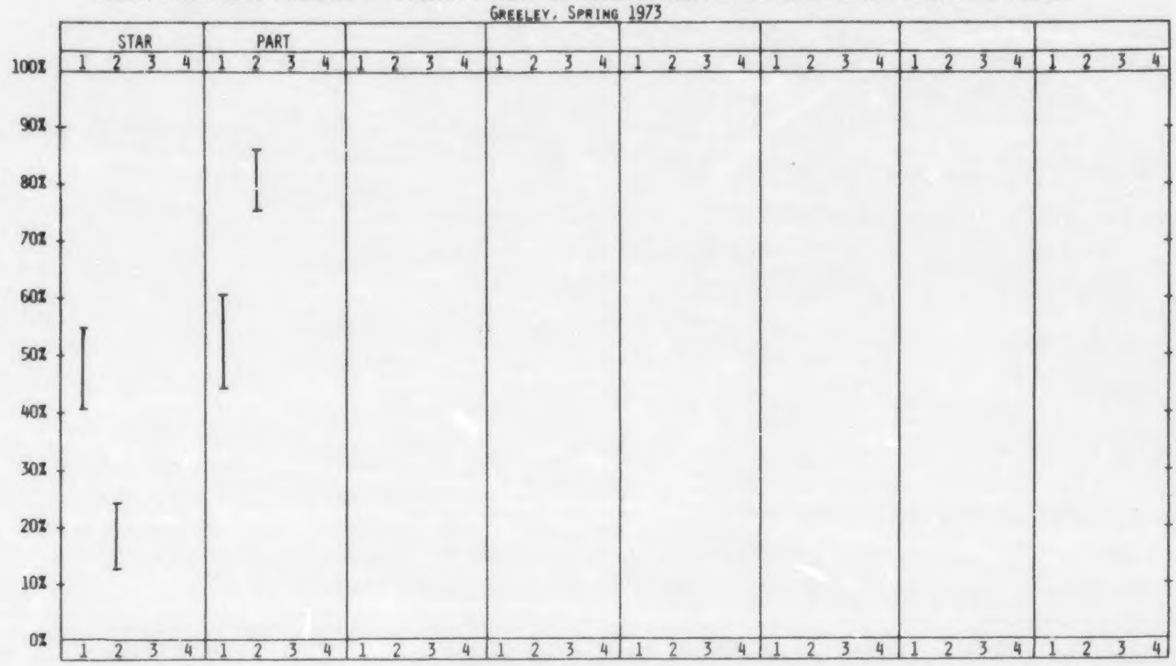


Figure 346
Goodman's Confidence Intervals of Category 6 Items for Follow Through and Non-Follow Through First Grade Classes
Greeley, Spring 1973

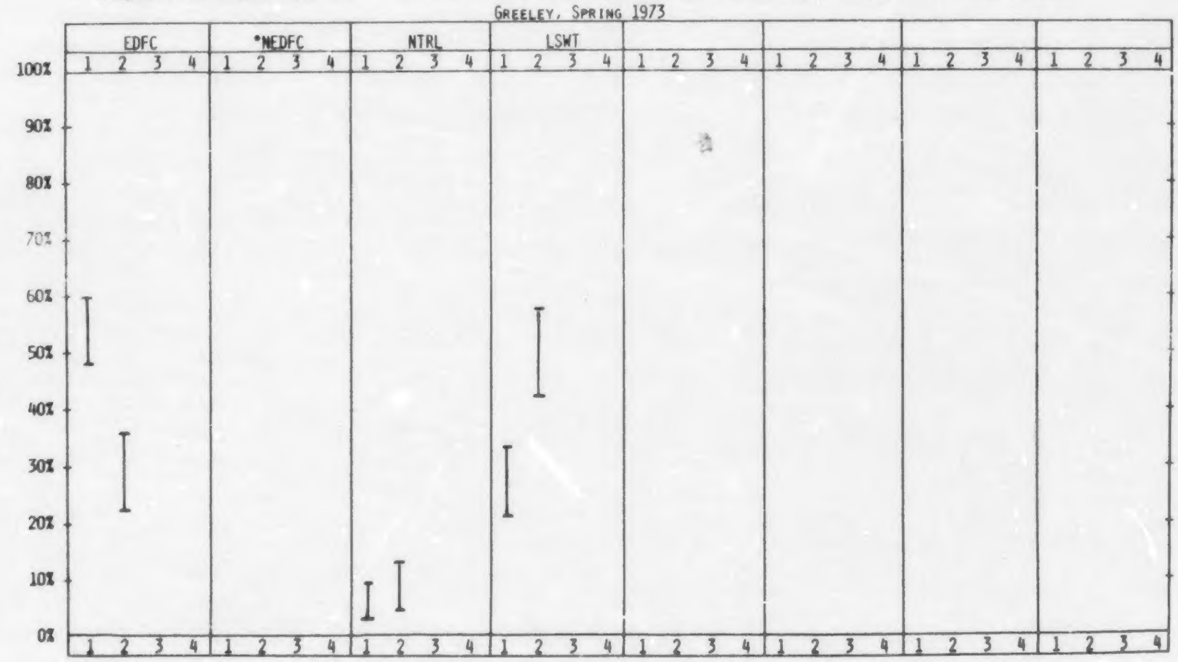


FIGURE 347

GOODMAN'S CONFIDENCE INTERVALS OF CATEGORY 7 ITEMS FOR FOLLOW THROUGH AND NON-FOLLOW THROUGH FIRST GRADE CLASSES

GREELEY, SPRING 1973

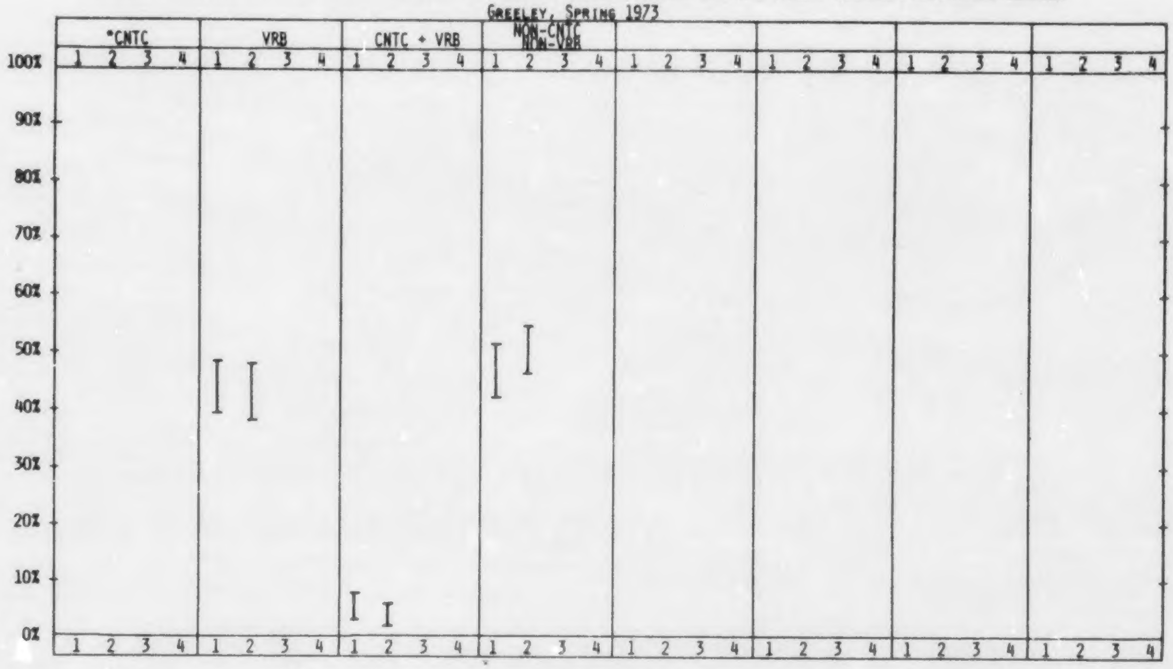


FIGURE 348

GOODMAN'S CONFIDENCE INTERVALS OF CATEGORY 9 ITEMS FOR FOLLOW THROUGH AND NON-FOLLOW THROUGH FIRST GRADE CLASSES

GREELEY, SPRING 1973

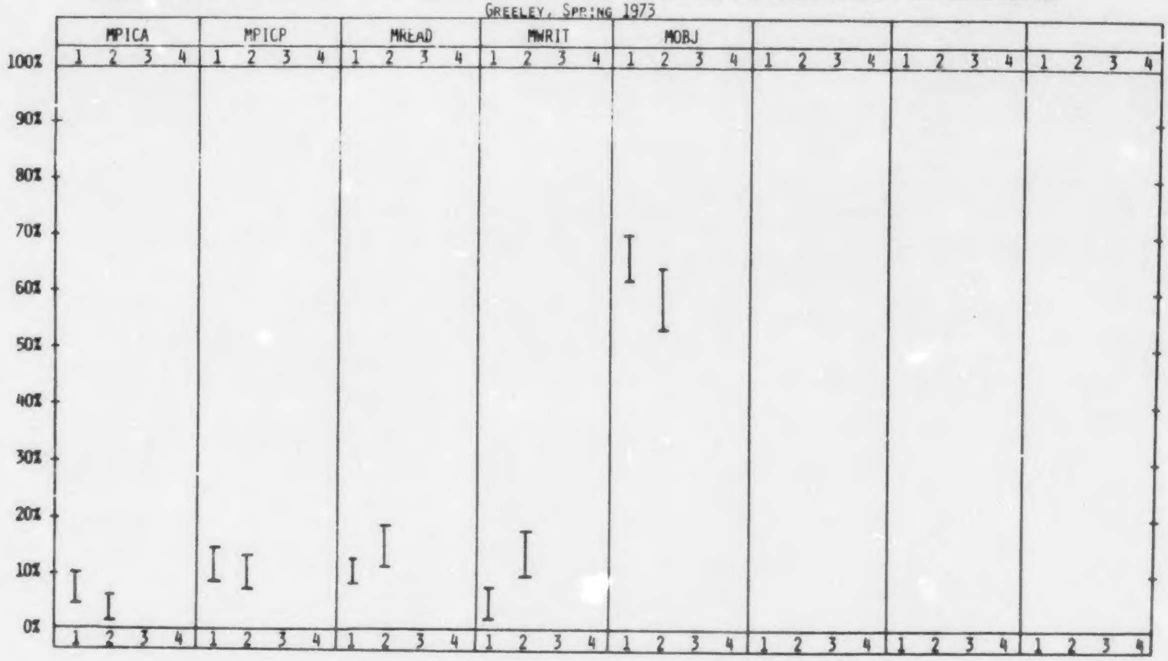


FIGURE 349

GOODMAN'S CONFIDENCE INTERVALS OF CATEGORY 12 ITEMS FOR FOLLOW THROUGH AND NON-FOLLOW THROUGH FIRST GRADE CLASSES

GREELEY, SPRING 1973

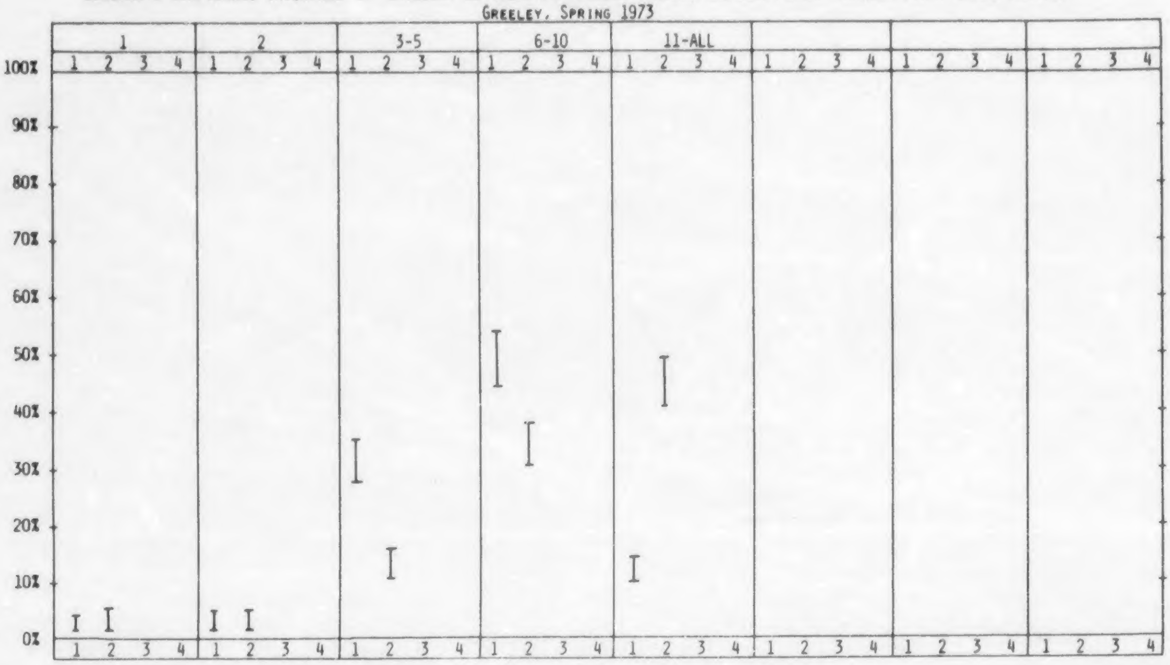
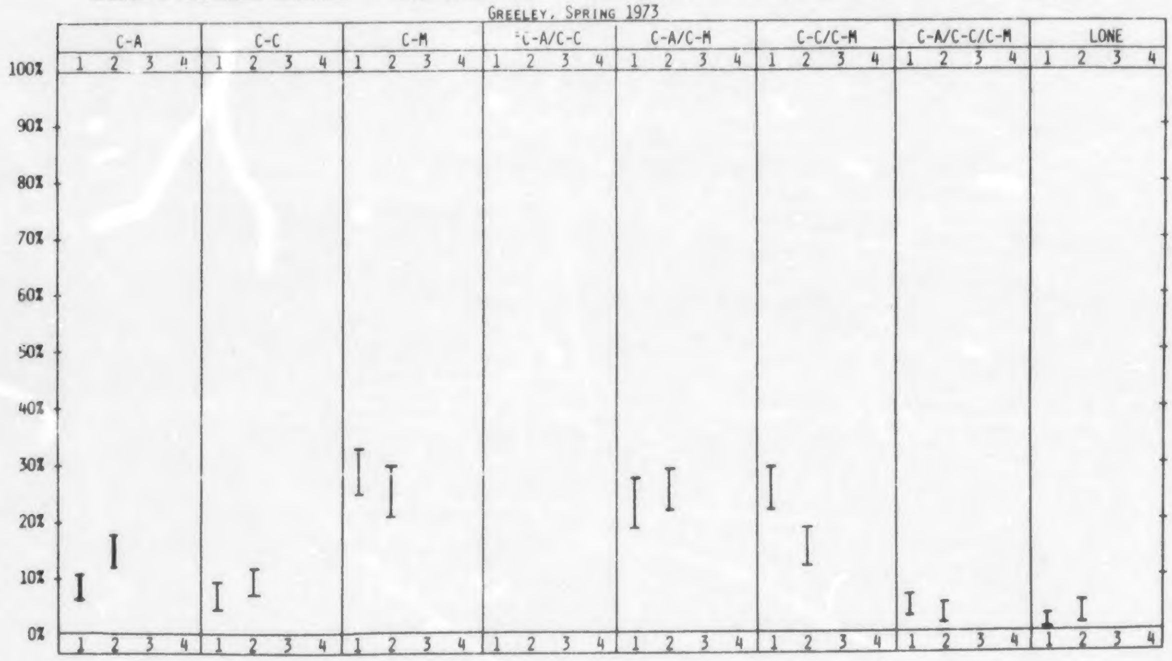


FIGURE 350

GOODMAN'S CONFIDENCE INTERVALS OF INTERACTION TYPES FOR FOLLOW THROUGH AND NON-FOLLOW THROUGH FIRST GRADE CLASSES

GREELEY, SPRING 1973



Comparison of Follow Through/Non-Follow Through Third Grade Classes

Figures 351-358 shows the third grade Follow Through/non-Follow Through comparisons. The third grade Follow Through students differed from the non-Follow Through students in a way similar to the first grade differences. They initiated interactions with adults more frequently, received more individual attention from adults, more frequently used materials in their interactions with other children, were more often drawing or creating picture materials, were more often in small groups (1 to 10) and were more often involved in both child-material interactions and child-child/child-material interactions. When these Follow Through third graders interacted with adults, the adults were more often listening to them or watching them. The non-Follow Through students were more often listening to or watching other children during child-child interactions, were more often involved in reading activities, were more often in large groups (11+) and more frequently interacted with adults only or with peers only. When these children interacted with adults, the adults were more often showing or telling.

These comparisons indicate that the observation instrument does differentiate Cognitive Curriculum classrooms from those classrooms not using the Cognitive Curriculum. The students in the cognitive classes received more individual attention from adults, and were more likely to be in small groups, and to center their interactions with peers around materials. The adults in the classrooms not using the Cognitive Curriculum usually interacted with children as members of a group and not as individuals. The children in these classes were in large groups and were passively involved with other children.

Figure 351
Goodman's Confidence Intervals of Category 2 Items for Follow Through and Non-Follow Through Third Grade Classes
Greeley, Spring 1973

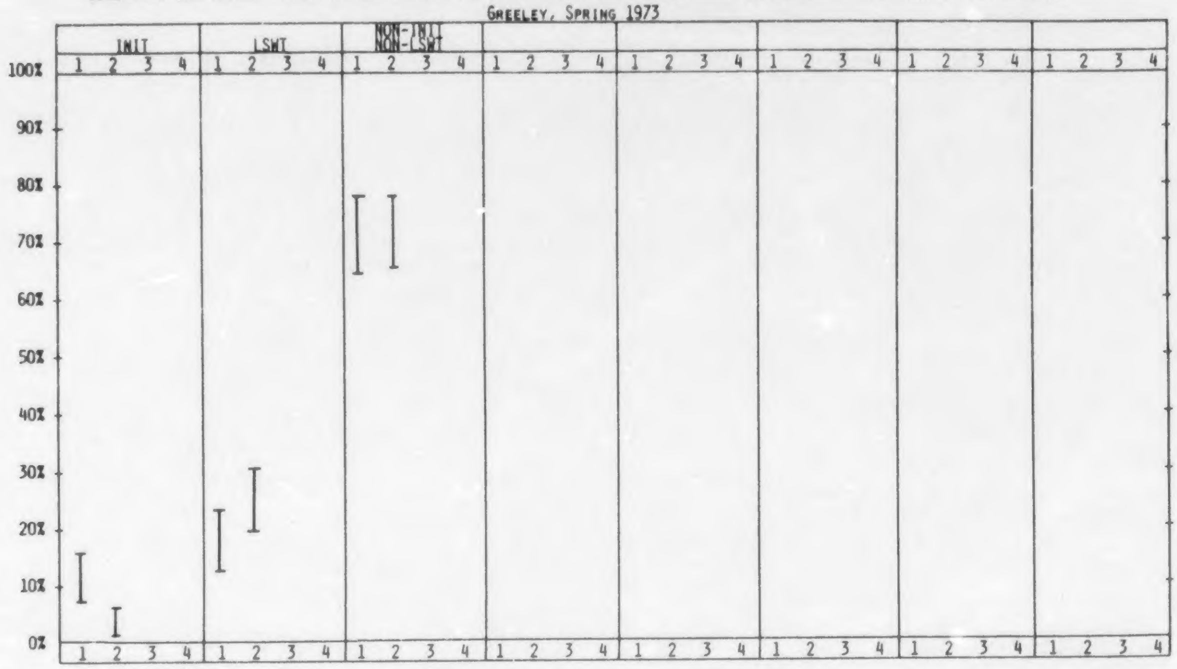


Figure 352
Goodman's Confidence Intervals of Category 4 Items for Follow Through and Non-Follow Through Third Grade Classes
Greeley, Spring 1973

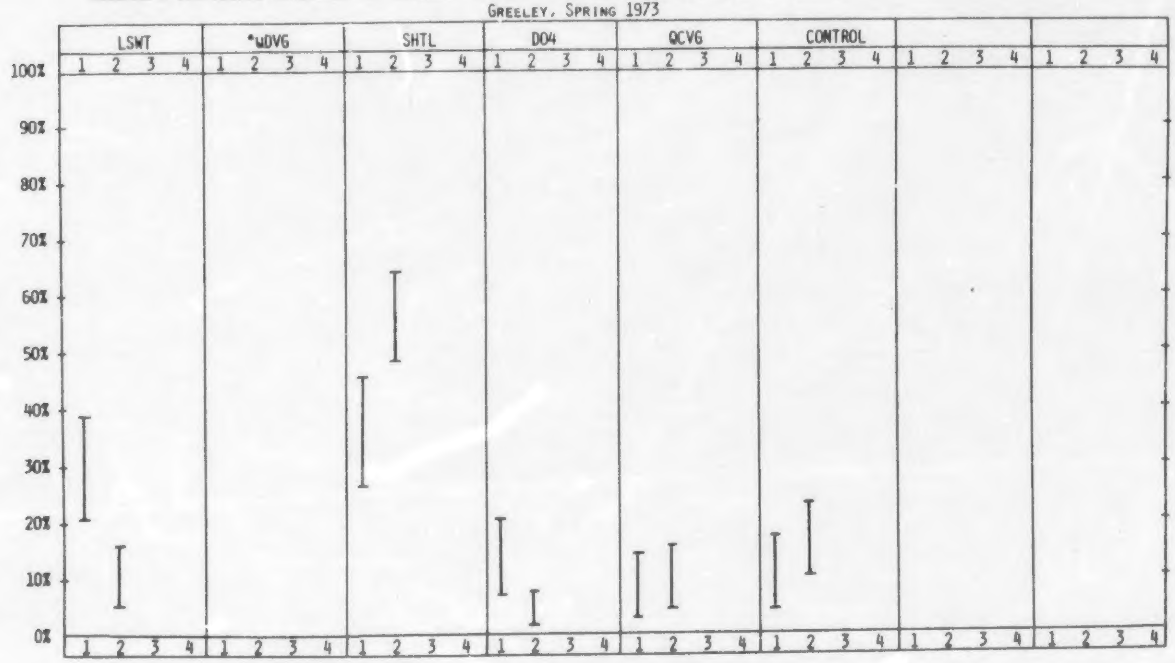


Figure 353

Goodman's Confidence Intervals of Category 5 Items for Follow Through and Non-Follow Through Third Grade Classes

Greeley, Spring 1973

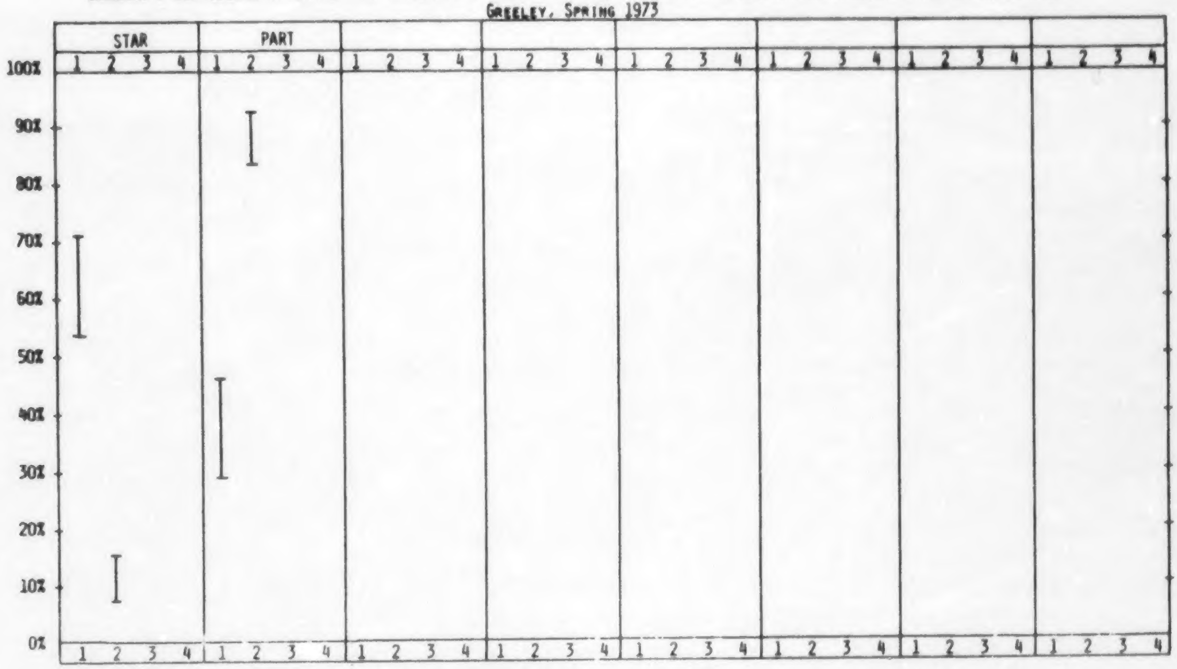


Figure 354

Goodman's Confidence Intervals of Category 6 Items for Follow Through and Non-Follow Through Third Grade Classes

Greeley, Spring 1973

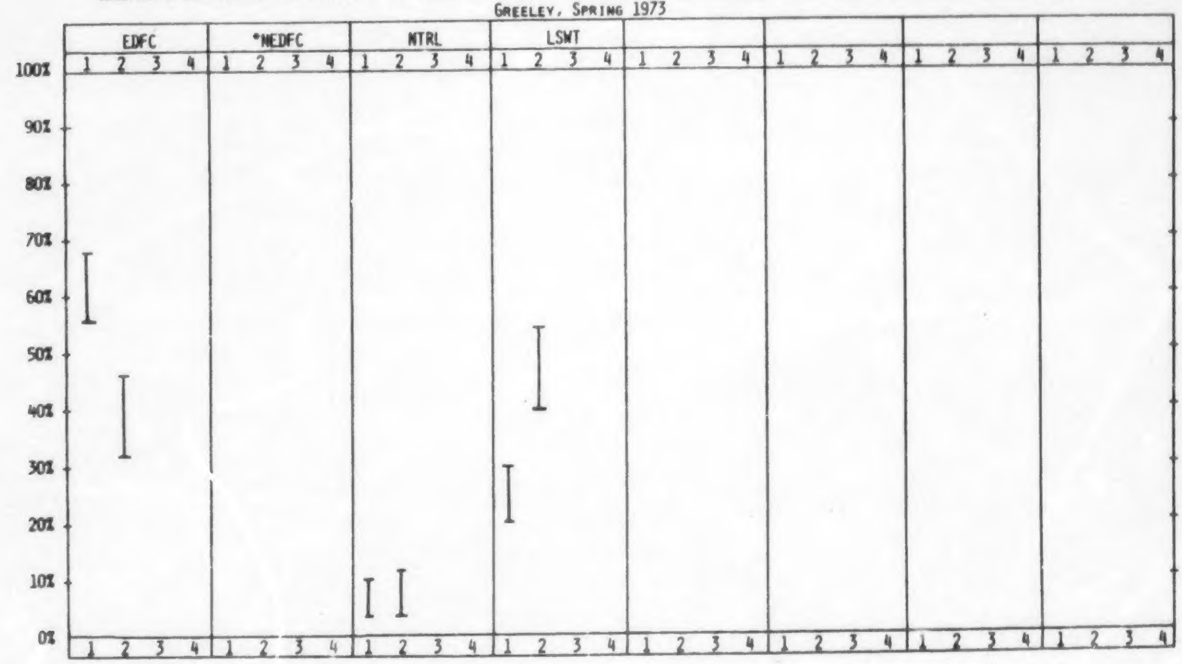


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Figure 355
Goodman's Confidence Intervals of Category 7 Items for Follow Through and Non-Follow Through Third Grade Classes
Greeley, Spring 1973

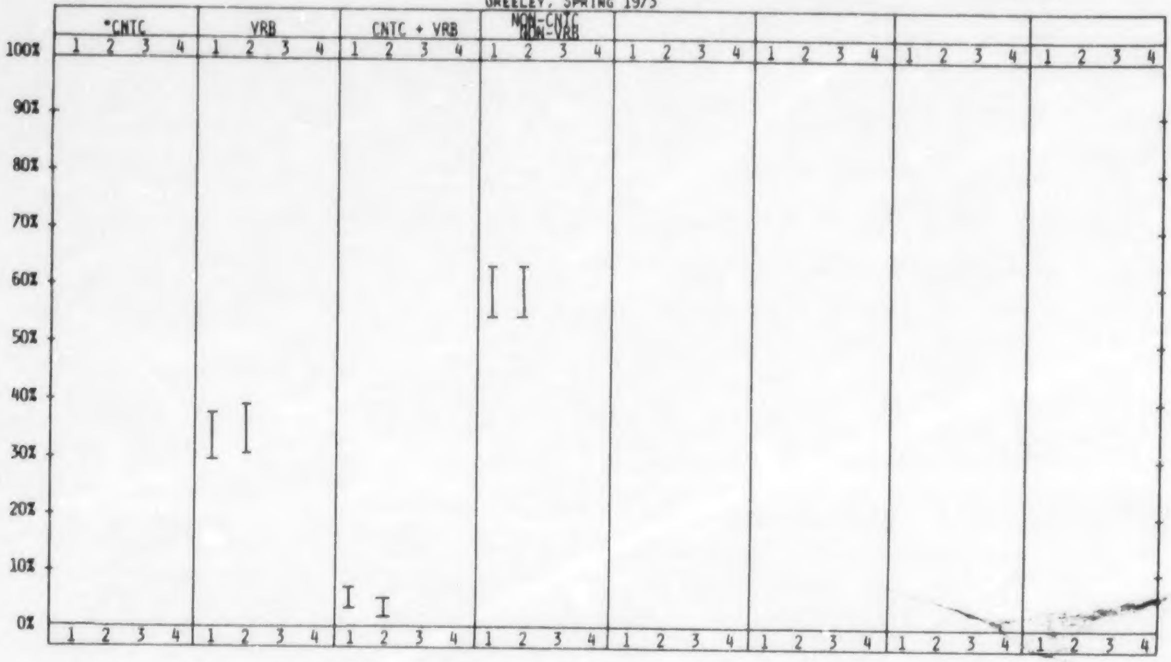

Figure 356
Goodman's Confidence Intervals of Category 9 Items for Follow Through and Non-Follow Through Third Grade Classes
Greeley, Spring 1973

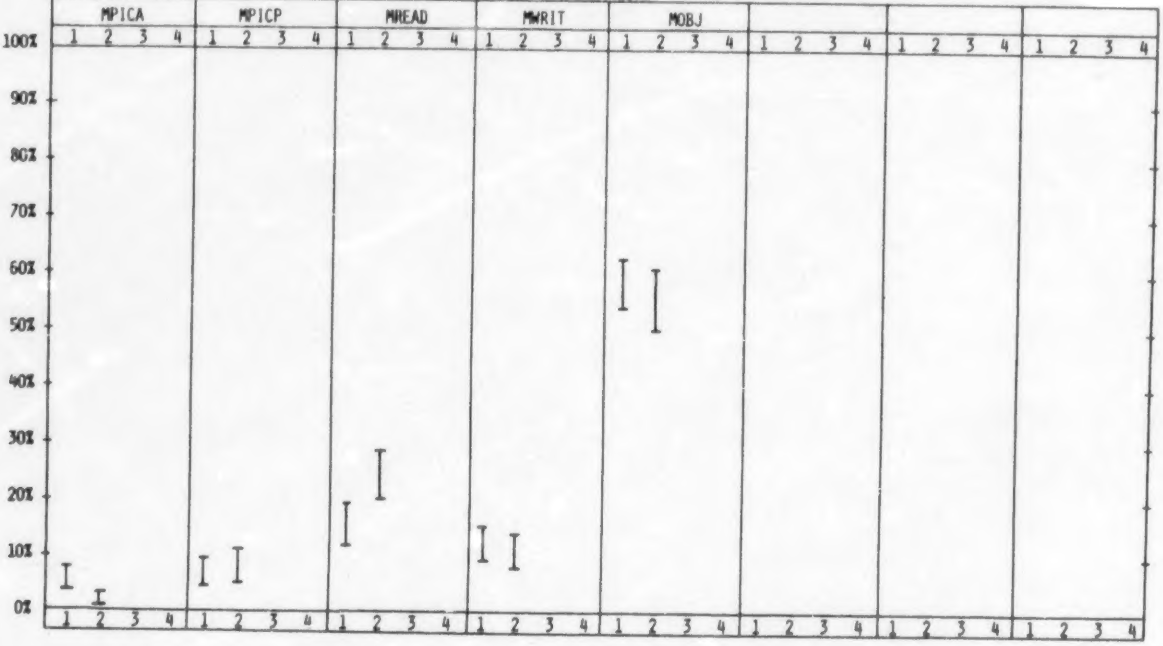

Figure 357

Goodman's Confidence Intervals of Category 12 Items for Follow Through and Non-Follow Through Third Grade Classes

Greeley, Spring 1973

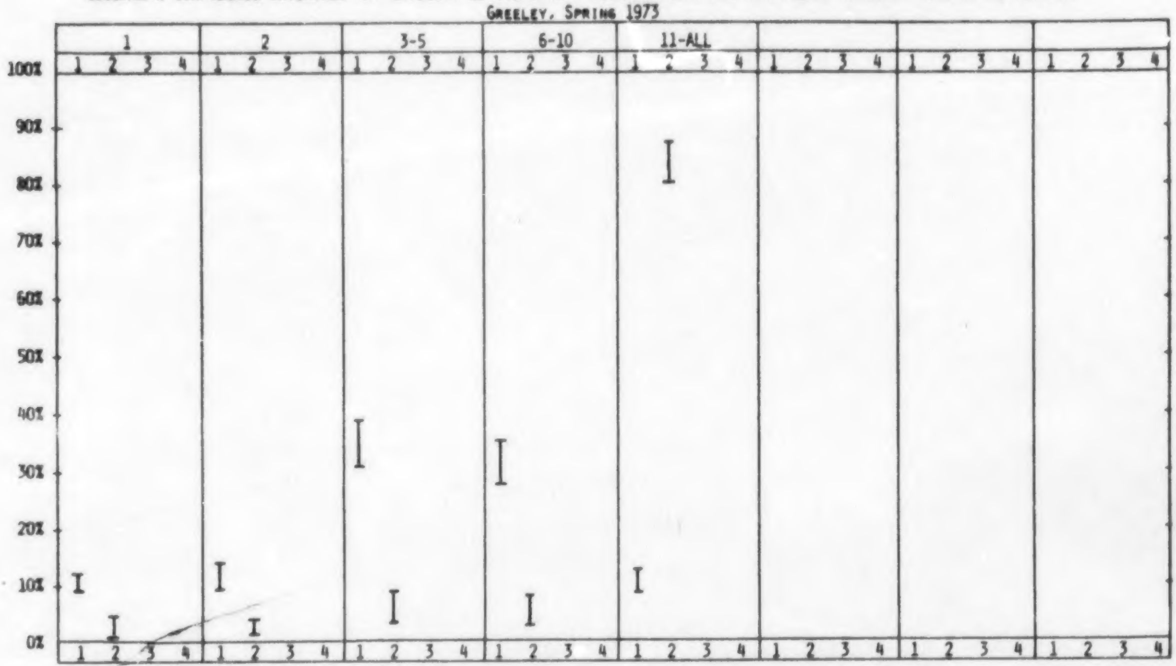

Figure 358

Goodman's Confidence Intervals of Interaction Types for Follow Through and Non-Follow Through Third Grade Classes

Greeley, Spring 1973